

# **Exhibit 1A**

## **(Part 1)**

*United States of America ex rel. Ven-a-Care of the Florida Keys, Inc. v. Dey, Inc., et al.,*  
Civil Action No. 05-11084-PBS

Exhibit to the Memorandum In Support of United States'  
Motion To Exclude Certain Opinions  
of W. David Bradford, PH.D

**UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF MASSACHUSETTS**

In re: PHARMACEUTICAL INDUSTRY AVERAGE  
WHOLESALE PRICE LITIGATION

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	)	
UNITED STATES OF AMERICA ex rel.	)	
VEN-A-CARE OF FLORIDA KEYS, INC.	)	
Plaintiff	)	
v.	)	CIVIL ACTION
	)	No. 05-11084-PBS
DEY, INC., et al	)	
Defendants	)	
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**APPENDICES TO THE  
EXPERT REPORT OF PROFESSOR DAVID BRADFORD, Ph.D.**

**March 6, 2009**

Appendices to the Expert Report of Professor David Bradford, Ph.D.

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## Appendix A: VITA of W. David Bradford, Ph.D.

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### A.1. Education

- Ph.D., Economics, Louisiana State University, 1991.
- M.S., Economics, Louisiana State University, 1989.
- B.S., Foreign Languages, Mississippi State University, 1987.

### A.2. Research and Teaching Interests

- Health Economics, Industrial Organization, Microeconomic Theory, Econometric Methods

### A.3. Professional Experience

- Professor (with tenure) and Busbee Chair in Public Policy, Department of Public Administration and Policy, University of Georgia, August 2008 to present.
- Director, Center for Health Economic and Policy Studies, Medical University of South Carolina, December 2002 to 2008.
- Professor (with tenure), Department of Health Administration and Policy, Medical University of South Carolina, July 2003 to 2008.
- Department Chair (Interim), Department of Health Administration and Policy, Medical University of South Carolina, 2004 to 2005.
- Associate Professor (with tenure), Department of Health Administration and Policy, Medical University of South Carolina, July 1998 to 2003.
- Visiting Associate Professor (sabbatical), Department of Medicine, Yale University, June 1997 to July 1998.
- Associate Professor (with tenure), Department of Economics, University of New Hampshire, August 1996 to May 1998.
- Assistant Professor, Department of Economics, University of New Hampshire, August 1991 to May 1996.

## A.4. Editorial Positions

- **Editor:** *Health Economics Letters*, a peer-reviewed journal sponsored by John Wiley and Sons, Publishers.
- **Associate Editor:** Member of Editorial Board for *Health Economics* (John Wiley and Sons, Publishers), 1997 to present; Associate Editor, 2006 to present.

## A.5. Awards

- Certificate of Appreciation, Centers for Disease Control and Prevention Effectiveness Fellowship Program, August 2006
- College of Health Professions Scholar of the Year, Medical University of South Carolina, 2000.
- Whittemore School of Business and Economics Summer Research Grant, University of New Hampshire, 1996.
- Department of Economics 1995-96 Outstanding Scholar, University of New Hampshire.
- University of New Hampshire Summer Faculty Fellowship, Summer 1995.
- University of New Hampshire Summer Faculty Fellowship, Summer 1994.
- Excellence in Teaching Award, College of Business, Louisiana State University, 1990.
- Excellence in Teaching Award, Department of Economics, Louisiana State University, 1989 and 1990.

## A.6. Publications

### A.6.1. Peer-Reviewed Journals

1. **Bradford WD.** “The Association Between Individual Time Preferences and Health Maintenance Habits.” *Medical Decision Making*. Forthcoming.
2. Axon RN, **Bradford WD**, Egan BM. “The Role of Individual Time Preferences In Health Behaviors Among Hypertensive Adults: A Pilot Study.” *Journal of the American Society of Hypertension*. Forthcoming.
3. **Bradford WD**, Klieit AN., Neitert PJ, Ornstein S. “The Effect of Direct to Consumer Television Advertising on the Timing of Treatment.” *Economic Inquiry*. Forthcoming.
4. Clancy C, Dismuke CE, Magruder K, Simpson K, **Bradford WD**. “Do Group Visits Lead to Lower Costs of Diabetes Care?” *American Journal of Managed Care*, 14(1): 39-44, 2008.
5. Terza JV, **Bradford WD**, Dismuke CE. “The Use of Linear Instrumental Variables Methods in Health Services Research and Health Economics: A Cautionary Note.” *Health Services Research*. 43(3): 1102-1120, 2008.
6. Silvestri GA, Neitert PJ, Zoller J, Carter C, **Bradford WD**. “Attitudes Toward Screening for Lung Cancer Among Smokers and Their Non-Smoking Counterparts.” *Thorax*, 62:126-130. 2007.
7. **Bradford WD**, Kleit AN., Neitert PJ, Ornstein S. “The Effect of Direct to Consumer Television Advertising for Hydroxymethylglutaryl Coenzyme A Reductase Inhibitors on the Attainment of

- LDL-C Goals.” *Clinical Therapeutics*, 28(12): 2105-2118, 2006. Editorial written on paper *Clinical Therapeutics*, 28(12): 2104. Letters, and response by authors published in *Clinical Therapeutics*, forthcoming.
8. **Bradford WD**, Kleit AN, Neitert PJ, Steyer T, McIlwain T, Ornstein S. “How Direct to Consumer Television Advertising for Osteoarthritis Drugs Affects Physicians’ Prescribing Behavior.” *Health Affairs*. 25(5):1371-1377, 2006.
  9. Masoudi FA, Baillie CA, Wang Y, **Bradford WD**, Steiner JF, Havranek EP, Foody JM, Krumholz HM. “The Complexity and Cost of Drug Regimens of Older Patients Hospitalized With Heart Failure in the United States, 1998-2001.” *Archives of Internal Medicine*. 165:2069-2076, 2005.
  10. **Bradford WD**, Kleit AN, Krousel-Wood MA, Re RN. "Comparing Willingness to Pay for Telemedicine Across a Chronic Heart Failure and Hypertension Population" *Telemedicine Journal*, 11(4):430-438, 2005.
  11. Nietert PJ, **Bradford WD**, Kaste LM. “The impact of an innovative reform to the South Carolina Dental Medicaid System.” *Health Services Research*, 40(4):1078-1091, 2005.
  12. **Bradford WD**, Kleit AN, Krousel-Wood MA, Re RN. “Double-Bounded Dichotomous Choice Method to Assess Willingness to Pay for Telemedicine.” *Journal of Telemedicine and Telecare*, 10(6): 325-330, 2004.
  13. Wager KA, **Bradford WD**, Lee FW, Jones W, Kilpatrick AO. “A Look at the South Carolina Postpartum/Infant Home Visit Program through the Viewpoint of Nurses.” *Public Health Nursing*, 21(6): 541-546, 2004.
  14. Hueston WJ, **Bradford WD**, Sheperd TM. “Family medicine and hospital specialty match rates: Does the economy have anything to do with it?” *Family Medicine*. 35(4):265-269, 2004.
  15. Sheidow AJ, **Bradford WD**, Henggeler SW, Rowland MD, Halliday-Boykins C, Schoenwald SK, Ward DM. “Treatment Costs for Youths in Psychiatric Crisis: Multisystemic Therapy versus Hospitalization.” *Psychiatric Services*. 55: 548-554, 2004.
  16. Ornstein S, Jenkins RG, Nietert PJ, Feifer C, Roylance LF, Nemeth L, Corley S, Dickerson L, **Bradford WD**, Litvin C. “A Multimethod Quality Intervention to Improve Preventative Cardiovascular Care.” *Annals of Internal Medicine*. 141(7):523-532, 2004.
  17. **Bradford WD**, Mobley L. “Employment-Based Health Insurance and the Effectiveness of Intra-Firm Competition between Insurance Providers.” *Southern Economic Journal*, 70(4): 1012-1031, 2004.
  18. **Bradford WD**, Kaste LM, Neitert PJ. “Health Insurance, Continuity of Medical Care the Nature of Physicians Visits for Infants and Young Children.” *Medical Care*, 42(1): 91-98, 2004.
  19. **Bradford WD**. “Pregnancy and the Demand for Cigarettes.” *American Economic Review*, 93(5): 1752-1763, 2003.
  20. **Bradford WD**, Neitert PJ, Kaste LM, Lala RF. “Increased Dental Medicaid Reimbursement Rates in SC.” *Journal of Public Health Dentistry* 2003; 63(S1):S37.
  21. **Bradford WD**, Krumholz HM. “The Effect of Managed Care Penetration on the Treatment of Acute Myocardial Infarction in the Fee-For-Service Medicare Population.” *International Journal of Health Care Finance and Economics*, 2:265-283, 2003.
  22. Krumholz HM, Weintraub WS, **Bradford WD**, Heidenreich PA, Mark DB, Paltiel D. “The Cost of Prevention: Can we afford it? Can we afford not to do it?” *Journal of the American College of Cardiology* 2002; 40(4): 603-615.

23. **Bradford WD**, Kleit AN, Krousel-Wood MA, Re RN. "A Two-Part Model of the Cost of Treating Benign Prostatic Hyperplasia and the Impact of Innovation." *Applied Economics*, 34:1291-1299, 2002.
24. **Bradford WD**, Kleit AN, Krousel-Wood MA, Re RN. "Testing the Efficacy of Telemedicine: A Detection Controlled Estimation Approach." *Health Economics*, 10(6):553-564, 2001.
25. Krousel-Wood MA, Re RN, Abdoh A, Chambers R, Altobello C, Ginther B, **Bradford WD**, Kleit AN. "The Effects of Education on Patients' Willingness to Participate in a Clinical Trial of Telemedicine Targeting Medical Care of Hypertensives." *Journal of Telemedicine and Telecare*, 7(5):281-287, 2001.
26. **Bradford WD**, Kleit AN, Krousel-Wood MA, Re AN. "Stochastic Frontier Estimation of Cost Models within the Hospital." *Review of Economics and Statistics*, 83(2):302-309. 2001.
27. Wexler D, Chen J, Radford MJ, Yaari S, **Bradford WD**, Krumholz HM. "Predictors of Costs of Caring for Elderly Patients Discharged with Heart Failure." *American Heart Journal*, 142(2):350-57. 2001.
28. Druss BG, **Bradford WD**, Rosenheck RA, Radford MJ, Krumholz HM. "Quality of Medical Care and Excess Mortality in Older Patients with Mental Disorders" *Archives of General Psychiatry*, 58(6):565-72. 2001.
29. Krousel-Wood MA, Re RN, Abdoh A, Gomez N, Chambers RB, **Bradford WD**, Kleit AN. "A Method to Report Utilization for Quality Initiatives in Medical Facilities." *The Ochsner Journal*. 3(4):200-206, 2001.
30. Krousel-Wood MA, Re RN, Abdoh A, **Bradford WD**, Kleit AN, Chambers R, Altobello C, Ginther B, Gomez N. "Patient and Physician Satisfaction in a Clinical Study of Telemedicine in a Hypertensive Patient Population." *Journal of Telemedicine and Telecare*, 7:206-211, 2001.
31. Krumholz HM, Chen YT, Vaccarino V, Wang Y, Radford MJ, **Bradford WD**, Horwitz RI. "Correlates and impact on outcomes of worsening renal function in patients greater than or equal to 65 years of age with heart failure." *American Journal of Cardiology*, 85(9): 1110-1113, 2000.
32. **Bradford WD**, Martin RL. "Partnerships, Intra-Firm Competition and Quality Choice in the Medical Profession." *Review of Industrial Organization*, 17: 193-208, 2000.
33. Druss BG, **Bradford WD**, Rosenheck RA, Radford MJ, Krumholz HM, "Mental Disorders and Use of Cardiovascular Procedures After Myocardial Infarction." *JAMA*, 283(4): 506-511, 2000.
34. Krumholz HM, Chen YT, **Bradford WD**, Ceresse J. "Variations and correlates of length of stay among patients hospitalized with heart failure in academic hospitals." *American Journal of Managed Care*, 5(6): 715-723, 1999.
35. **Bradford WD**, Chen J, Krumholz HM. "Under-utilization of beta-blockers after acute myocardial infarction: pharmacoeconomic implications." *Pharmacoeconomics*, 15(3): 257-268, 1999.
36. Mobley L, **Bradford WD**. "'Profit' Variability Among Hospitals: Ownership or Location?" *Applied Economics*, 29: 1125-1138, 1997.
37. DeFelice LC, **Bradford WD**. "Relative Inefficiencies in Production between Solo and Group Practice Physicians" *Health Economics*, 6:455-465, 1997.
38. **Bradford WD**, Craycraft C. "Prospective Payments and Hospital Efficiency," *Review of Industrial Organization*, 11(6): 791-809, 1996.



39. **Bradford WD.** "Efficiency in Employment-Based Health Insurance: The Potential for Supra-Marginal Cost Pricing," *Economic Inquiry*, 34(2): 341-356, 1996.
40. **Bradford WD.** "The Effects of a Relative Value Reimbursement Scheme on the Medical Market: Lessons from Medicaid," *Review of Industrial Organization*, 10(4): 511-532, 1995.
41. **Bradford WD, Martin RL.** "A Test of the Supplier Induced Demand Hypothesis with Endogenous Quality," *Eastern Economic Journal*, 21(4): 491-504, 1995.
42. **Bradford WD, Martin RL.** "Office Triage and the Physician Labor Supply Curve," *Empirical Economics*, 20(2): 303-325, 1995.
43. **Bradford WD.** "Solo versus Group Practice in the Medical Profession: The Influence of Malpractice Risk," *Health Economics*, 4(2): 95-112, 1995.
44. **Bradford WD.** "National Health Care and Quality of Service: Lessons from Medicaid," *Contemporary Policy Issues*, 11(2): 23-38, 1993.
45. Culbertson WP, **Bradford WD.** "The Price of Beer: Some Evidence from Interstate Comparisons," *International Journal of Industrial Organization*, 9(1991): 275-289.

#### A.6.2. Book Chapters and Other Professional Publications

1. **Bradford WD.** "Service Utilization Comparison of South Carolina Medicaid FFS, Physician Enhanced Program (PEP) and Health Maintenance Organization (HMO)." *The Journal of the South Carolina Medical Association*, forthcoming.
2. **Bradford WD.** "Introduction to the Third Annual Southeastern Health Economics Study Group Conference." *Southern Economic Journal*. 73(3): 550-552, 2007.
3. **Bradford WD, Kleit AN.** "Plugs for Drugs: Threat or Menace?" *Regulation*. 29(1): 58-62. Spring 2006.
4. **Bradford WD, Kleit AN.** "Direct to consumer advertising." In AM Jones (ed.) *Elgar Companion to Health Economics* (Cheltenham, UK: Elgar Publishing, 2006).
5. **Bradford WD.** "Cost Benefit Analysis in Health Services Research." In E Chumney and K Simpson (eds.) *Designs for Outcomes Research* (Bethesda, MD: American Society of Health-System Pharmacists, 2006).
6. **Bradford WD, Kleit AN, Neitert PJ, Steyer T, McIlwain T, Ornstein S.** "The Effect of Direct to Consumer Television Advertising on the Timing of Treatment" *AEI-Brookings Papers*, 05-19. Sep 2005.
7. Tilley BC, Wisdom K, Sadler ZE, **Bradford WB.** "Overcoming Barriers to the Inclusion of Older African Americans in Health Outcomes Research." In: Curry L & Jackson JS (Eds.). *Recruiting and Retaining Racial and Ethnic Elders in Health Research*. Washington, D.C.: Gerontological Society of America, 2003.
8. **Bradford WD.** "National Trends in Physician Income," in *The Organization and Management of Physician Services: Evolving Trends*, Ronald B. Connors, editor (American Hospital Association Publishing Company), 1997.
9. **Bradford WD, Dahl C.** "Preliminary Report on a Cost-Benefit Study of Mandated Ethanol-Gasoline Blends," *Proceedings of the Eleventh Annual North American Conference for the International Association of Energy Economists*, (October 1989), pp. 226-236.

### A.6.3. Reports

1. **Bradford WD**, Wager KA, Graber D, Jones WJ, Ward DM, White AW. *South Carolina Medicaid Out Of Home Placement Evaluation Report*. Report to the South Carolina Medicaid Agency. April 2004.
2. **Bradford WD**, Commins JS. *Sickle Cell Disease in the South Carolina Medicaid Population: Incidence, Utilization, and Costs*, Report to the South Carolina Medicaid Agency, December 2003.
3. **Bradford WD**, Commins JS. *The Impact of Diabetes in the South Carolina Medicaid Population in 2002*, Report to the South Carolina Medicaid Agency, December 2003.
4. **Bradford WD**, Commins JS. *Comparison of Expenditures and Service Utilization: Fee-For-Service Enrollees versus Select Health Members*, Report to the South Carolina Medicaid Agency, September 2003.
5. **Bradford WD**, Commins JS. *Comparison of Expenditures and Service Utilization: Fee-For-Service Enrollees versus Physician Enhanced Payment Enrollees, 2001-2002*, Report to the South Carolina Medicaid Agency, September 2003.
6. **Bradford WD**, Lee FW, Dismuke CE, McIlwain T, Jones WJ, Simpson K. *South Carolina Medicaid DAODAS Prior Authorization Services Outcome Evaluation*. Report to the South Carolina Medicaid Agency, October 2003.
7. **Bradford WD**, Lee FW, Jones W, Kilpatrick AO, Wager KA. *South Carolina Medicaid Postpartum/Infant Home Visit Program Outcome Evaluation*, Report to South Carolina Medicaid Agency, December 2002.
8. **Bradford WD**, Jones WJ, Ward DM. *Report on Service Utilization Comparison of South Carolina Medicaid FFS and Physician Enhanced Payment (PEP) Programs*. Report to South Carolina Medicaid Agency, August 2002.
9. **Bradford WD**. "The Role of Patient Demand in Driving Health Care Spending" BCBSHealth Issues.com, April 29, 2002. <http://bcbshealthissues.com/perspectives/healthcarecosts/>
10. **Bradford WD**. *Report on Service Utilization Comparison of South Carolina Medicaid FFS and HMO Programs*, Report to South Carolina Medicaid Agency, December 2001.
11. VLBW Research Team (**Bradford WD**, team member). *Very Low Birth Weight Outcomes Project*, Report to South Carolina Medicaid Agency, 2000.
12. Re RN, Krousel-Wood MA, **Bradford WD**, Kleit AN. *The Role of Technology in Reducing Health Care Costs*, Report to Sandia National Laboratories, 1997.
13. Farber SC, **Bradford WD**, Wascom D. *Chemical Waste in Louisiana, 1987: A Summary of Hazardous Waste and Toxic Chemicals*, Report to the Louisiana Department of Environmental Quality, 1989.

### A.6.4. Editorials

1. **Bradford WD**. "Commentary from a Health Economist: Financing Pediatric Psychology: Buddy, Can You Spare a Dime?" *Journal of Pediatric Psychology*, Vol. 29, No. 1, 2004.

### A.6.5. Abstracts

1. **Bradford WD**, Silvestri G, Zoller J. "Time preference and willingness to pay for preventive health services: an application to lung cancer screening." International Health Economics Association Fourth International Conference, San Francisco, California, June 2003.
2. Kaste LM, Nietert PJ, **Bradford WD**, Oldakowski R, Drury T. "Race/ethnicity variation of usual source of medical care and sealants." *Journal of Public Health Dentistry*, 2001;61(4):235.
3. **Bradford WD**, Kaste LM, Nietert PJ. "Continuity of medical care and its association with dental advice." *Journal of Dental Research*. 2001;80(IADR Abstracts):540.
4. **Bradford WD**. "Direct to Consumer Advertising for Prescription Drugs: A Game Theoretic Model." International Health Economics Association Third International Conference, York, United Kingdom, July 2001.
5. Re RN, Krousel-Wood MA, **Bradford WD**, Kleit AN, Runnels, J. "A Computer Model for the Evaluation of the Economic Impact of Health Care Technology," Association for Health Services Research, Chicago, Illinois, June 1997.
6. Chen YT, **Bradford WD**, Wang Y, Selzer J, Krumholz H. "The impact of acute renal failure on cost in elderly patients with congestive heart failure." International Society for Pharmacoeconomics and Outcomes Research Third Annual International Meeting, Philadelphia, Pennsylvania, May 1998.
7. **Bradford WD**. "Solo Practice Versus Partnerships in the Medical Profession: The Influence of Malpractice Risk," *Proceedings of the Northeast Business and Economics Association Annual Meeting*, Portsmouth, New Hampshire, 1993.

### A.6.6. Book Reviews

1. Book Review of *Telemedicine and Telehealth*, in *Health Economics*, 10(7):681-682. 2001.
2. Book Review of Feldstein, Paul J., *Health Policy Issues: An Economic Perspective on Health Reform*, (Ann Arbor: Health Administration Press), in *Inquiry*, 32(3): 360-361, 1995.
3. Book review of Jacobs, Philip, *The Economics of Health and Medical Care, Third Edition*, (Gaithersburg, Maryland: Aspen Publishers, Inc. 1991), in *Inquiry* 29(2): 276, 1992.

### A.7. Current Research

1. **Bradford WD**, Silvestri G, Zoller J. "Time preference and the use of preventative disease screening." *Under review*.
2. **Bradford WD**, Kleit AN. "The Impact of Advertising on Statin Drug Adherence and Attaining LDL Cholesterol Goals." *Under review*.
3. Sheidow A, **Bradford WD**, Henggeler S. "Cost-Effectiveness of Evidence Based Treatment in Juvenile Drug Court." *Under review*.
4. McCullough JS, **Bradford WD**. "The Effect of Direct to Consumer Advertising on Watchful Waiting: The Case of Statin Ads and Cholesterol Testing Behavior." *In process*.
5. **Bradford WD**, Kleit AN. "Advertising Search, Experience and Prestige Characteristics: The Case of Prescription Pharmaceuticals." *In process*.
6. **Bradford WD**, Dolan P. "A Model of Adaptive Global Utility Maximization." *In process*.

7. **Bradford WD.** “A Matching Process to Create Simulated Instrumental Variables.” *In process.*

## A.8. Grants and Contracts

### A.8.1. Currently Active as Principal Investigator:

1. “Effect of FDA Boxed Warnings and Public Information on Pharmaceutical Use (continuation)” (Principal Investigator, R01 HS011326-03) Agency for Healthcare Research and Quality. *The goals of this project are to determine whether FDA Black Box Warnings are effective tools at post-marketing drug safety improvement given the existence of clinical publications, media coverage, and direct to consumer pharmaceutical advertising.* 09/07/07 – 08/31/11. \$1,172,609 (25% effort).
2. “Clinical efficacy and potential cost offsets for state Medicaid programs from increased Mirena utilization.” (Principal Investigator) Source: Bayer/Berlex (Contract), July 2007 – June 2008. \$70,000.
3. “State Use of Master Settlement Agreement Funds: Developing a Report Card” (Local Principal Investigator). Department of Defense. *The goals of this project are to assess the use of funds awarded to each state as a consequence of the Master Settlement Agreement, and the effectiveness of that use in reducing teen smoking.* 8/1/06 – 7/30/09. \$210,259 (5% effort).
4. “Public Health and Economic Implications of Free Nicotine Replacement” (Local Principal Investigator). Department of Defense. *The goals of this research are to estimate the health effects and budgetary impacts of programs to offer free nicotine replacement therapy to encourage smoking cessation.* 8/1/06 – 7/30/09. \$289,221 (5% effort).

### A.8.2. Completed as Principal Investigator:

1. “DTC Advertising Effect on Adherence to Statin Therapy” (Principal Investigator) National Heart Lung and Blood Institute (NIH). *The goal of this research is to assess the effect of direct to consumer advertising for prescriptions of statins on the adherence and cost effectiveness of pharmacological care for hypercholesterolemia.* 07/01/04 – 05/31/07; \$714,520. (30% effort).
2. “Impact Study of the New Hampshire Employment Program” (Principal Investigator). New Hampshire Department of Health and Human Services / United States Agency for Families and Children. *Project compares the duration on, duration off and recidivism rates for welfare recipients in New Hampshire before and after a state-wide reform proposal was implemented. In addition, the project examines the caseload for the state as a whole over the 1985 to 1999 time period.* 02/01/97 – 10/31/99; \$500,000 (35%).
3. “Incidence of Cross-System Medical Usage: Veterans Use of the VA and Fee-for-Service Medicare” (Principal Investigator). Northeast Program Evaluation Center – Veterans Administration. *Project compares the incidence of cross-system use by veterans suffering acute myocardial infarction in 1995. Implications of multi-system use, including total cost of care, quality of care and outcomes are also evaluated.* 10/01/98 – 09/30/99; \$15,478 (15%).
4. “Assessing the Impact of Increased Dental Medicaid Reimbursement Rates on the Utilization and Access to Dental Services in South Carolina.” (Principal Investigator); Health Services Research Administration. *The goal of this research is to assess the impact of increased dental Medicaid reimbursement rates on the utilization and access to dental services in South Carolina.* 08/15/00 – 12/15/01; \$125,000 (15% effort).

Appendices to the Expert Report of Professor David Bradford, Ph.D.

5. “TeleHealth Deployment Research Testbed – MUSC Component.” (Principal Investigator); Submitted to the Health Services Research Administration. *The goal of this project is to establish a testbed for telemedicine demonstration projects, to standardize assessment mechanisms for new telemedicine technologies.* 08/01/00 – 07/30/01; \$400,000, (40% effort).
6. “TeleHealth Deployment Research Testbed, Phase II – MUSC Component.” (Principal Investigator); Health Services Research Administration. *The goal of this project is to establish a testbed for telemedicine demonstration projects, to standardize assessment mechanisms for new telemedicine technologies.* 08/01/01 – 07/30/02; \$280,000, (35% effort).
7. “Postpartum/Infant Home Visit Program Outcome and PEP Program Outcome Evaluation” (Principal Investigator) South Carolina Medicaid Agency. *The goal of this project is to determine the factors that affect the success of the postpartum home visit program.* 04.01.02 – 7/30/02; \$170,702.
8. “Out of Home Placement Program and DAODAS Prior Authorization System Outcome Evaluation” (Principal Investigator) South Carolina Medicaid Agency. *The goal of this project is to determine the factors that affect the success and efficiency of the Out of Home Placement Program and the DAODAS Prior Authorization System.* 08/01/02 – 7/30/03. \$400,000 (16% effort).
9. “Impact of Asthma, Psychoses, Smoking and Obesity on SC Medicaid Programs Evaluation” (Principal Investigator) South Carolina Medicaid Agency. *The goal of this project is to determine how specific disease clusters are treated, and how these treatments affect the SC Medicaid System.* 08/01/03 – 7/30/04. \$400,000 (10% effort).
10. “Impact of Direct to Consumer Pharmaceutical Marketing” (Principal Investigator) AHRQ. *The goal of this research is to assess the effect of direct to consumer advertising for prescriptions of cox-2 inhibitors and statins on the costs and cost effectiveness of pharmacological care for osteoarthritis and hypercholesterolemia.* 06/01/03 – 05/31/05; \$408,172. (30% effort).
11. “Utilization and Cost of Health Services by CDU” (Principal Investigator) NIDA. *The goal of this research is to develop new methods to assess the costs of health care associated with drug and other substance abuse.* 08/01/03 – 07/30/07. \$714,520 (25% effort).
12. “Medicaid Program Evaluation: HMO, Sickle Cell Disease, and Diabetes” (Principle Investigator). Carolina Medical Review. *The goal of this research is to evaluate the HMO program within the SC Medicaid system, and to evaluate guideline adherence for Sickle Cell disease and Diabetes.* 06/01/03 – 12/31/03; \$40,000 (hourly effort).
13. “17<sup>th</sup> Annual Health Economics Conference” (Principal Investigator, 1R13HS016352-01). DHHS/Agency for Healthcare Research and Quality. *The goals of this conference are to (1) advance the policy applicability of health economics; (2) improve the policy relevance of empirical health economics; and (3) develop the next generations of health economic scholars.* 03/17/06 – 03/16/07. \$52,560 (5% effort).
14. “A Project to Estimate the Cost-effectiveness and Budgetary Impact of Student in Portugal using the Model of the Treatment of Metastatic Renal Cell Carcinoma (mRCC).” Source: Datamedica (Contract), 1/1/06 – 12/31/06. \$38,800.
15. “A Project to Estimate Budget Impact and Cost-effectiveness of Macugen in Portuguese Patients with Age-Related Macular Degeneration.” (Principal Investigator) Source: Datamedica (Contract), 1/1/06 – 12/31/06. \$28,100.



### A.8.3. Completed as Co- Investigator:

1. “Testing EBP and Organization Effects in Rural Appalachia” (Co-Investigator) NIMH. The goal of this project is to assess the effect of combining organization change interventions with multisystemic therapy for the effectiveness of social services support in rural Appalachia. 07/01/03 – 06/30/07 (10% effort).
2. “Substance Abusing Delinquents: 5-Year Outcomes of RCT” (Health Economist), National Institute of Mental Health. *The goal of this study is to attenuate deleterious long-term outcomes and cost in a sample of 200 chronic juvenile offenders meeting diagnostic criteria for alcohol or drug abuse or dependence.* 09/01/04 – 08/31/09. (5% effort).
3. “Alcohol/Drug Abusing Delinquents: 5-Year Outcomes of RCT” (Health Economist), National Institute of Mental Health. *The goal of this study is to attenuate deleterious long-term outcomes and cost in a sample of 200 chronic juvenile offenders meeting diagnostic criteria for alcohol or drug abuse or dependence.* 04/01/03 – 03/31/08. \$ 1,941,755 (10% effort).
4. “The Effectiveness of Catheterization on Mortality from Acute Myocardial Infarction when Controlling for Selection Effects in an Elderly and Non-Elderly Population,” (Co-Investigator) under contract for the State of Connecticut. *Project investigates the consequences of expanding coronary catheterization capacity to all hospitals in the state of Connecticut.* 01/01/96 – 12/31/96; \$20,000.
5. “The Role of Technology in Health Care Costs,” (Co-Investigator), Department of Energy / Sandia National Laboratories Contract AN - 6271. *Project develops a general methodology to assess the full cost implications of technological innovation in health care from a social perspective.* 05/01/95 – 04/30/97; \$1,200,000 (varying percent effort).
6. “Extension of: ‘The Role of Technology in Health Care Costs’,” (Co-Investigator), Department of Energy / Sandia National Laboratories Contract AN - 6271. *Project assesses the cost implications for the adoption of remote medicine (telemedicine) technologies to provide health care to various populations. Project also undertakes cost effectiveness simulations.* 09/01/97 – 08/31/99; \$1,000,000 (varying percent effort).
7. “Extension of: ‘The Role of Technology in Health Care Costs’,” (Co-Investigator), Department of Energy / Sandia National Laboratories Contract AN - 6271. *Project assesses the cost implications for the adoption of remote medicine (telemedicine) technologies to provide health care to various populations. Project also undertakes cost effectiveness simulations.* 09/01/99 – 08/31/01; \$800,000 (varying percent effort).
8. “MST vs. Hospitalization: 2-Year follow-up for Outcomes” (Co-investigator). National Institute of Mental Health. *The major goal of this project is to assess the economic benefits of MST treatment vs. standard treatment for children with mental health crises in terms of reducing costs associated with institutionalization.* 7/1/99 – 6/30/01; \$601,819, (5%).
9. “CMR – Very-Low Birth Weight Birth” (Co-Investigator). Carolina Medical Review *This project will evaluate the characteristics of very-low birth weight births, and the factors which contribute to adverse outcomes, readmission and high cost.* 04/01/99 – 05/31/99; \$8,825 (20%).
10. “MST with Alcohol Abusing Delinquents: Outcomes and Costs” (Co-Investigator). National Institute of Mental Health. *The major goal of this project is to assess the use of MST (non-institutional) therapy for delinquent adolescents compared to standard institutionalization.* 7/1/99 – 6/30/04; \$2,982,078, (5% effort).
11. “Randomized Clinical Trial of Juvenile Drug Court and MST” (Co-Investigator). National Institute on Drug Abuse. *The major goal of this project is to assess the use of MST in conjunction*

*with juvenile drug court enhances the clinical and cost-related outcomes for drug-using delinquent adolescents. 9/01/99 – 8/31/04, \$1,740,207, (5.2% effort).*

12. “Understanding and Eliminating Health Disparities in Blacks” (Co-Investigator). Approved by Agency for Healthcare Research and Quality. *The goal of this research is to explore the many factors that lead to and perpetuate disparities in health outcomes among the African-American population of the state of South Carolina. \$12,118,398 (14.83% effort).*
13. “Disease and Stroke in Primary Care Practice” (Co-Investigator); Submitted to Agency for Health Care Policy and Research. *The major goal of this project is to determine whether academic detailing with respect to the use of quality improvement initiatives based on electronic medical record systems can improve adherence to clinical guidelines. \$864,045 (9.88% effort).*
14. “Feasibility of Remote Video Outpatient Clinical Visits in Cancer Patients Receiving Palliative Care” (Service Center Leader), Department of Defense. *The major goal of this project is to assess the utility of telemedicine for patients receiving palliative care for cancer. 7/1/01 – 6/31/03, award for service center: \$7,000.*
15. “Assessing Barriers for the Screening of Lung Cancer in Rural Populations: A Telephone and Written Survey” (Service Center Leader), Department of Defense. *The goal of this project is to better understand barriers-to-care for patients with lung cancer living in rural and medically underserved areas. 12/01/01 – 11/30/02, \$149,964 (20% effort) .*
16. “Schools as a Context for Mental Health” (Co-Investigator) NIH/NIMH. *The goal of this study is to investigate interdisciplinary approaches, and the cost effectiveness of those interventions, for providing mental health services to children within the educational infrastructure. 09/01/02 – 08/31/05 (4% effort).*
17. “Assessing Barriers for the Screening of Lung Cancer in Rural Populations: Physician Acceptance” (Service Center Leader), Department of Defense. *The goal of this project is to better understand barriers-to-care for patients with lung cancer living in rural and medically underserved areas. 01/01/03 – 12/31/05, \$300,000 (20% effort).*

## A.9. Papers Presented

1. **Bradford WD**, Klieit AN. “The Effect of Information on the Timing of Pharmaceutical Treatment for Cholesterol.” American Society of Health Economics Annual Meeting, Durham, NC, June 22-25, 2008.
2. **Bradford WD**, Klieit AN. “Advertising Search, Experience and Prestige Characteristics: The Case of Prescription Pharmaceuticals.” 5<sup>th</sup> Annual Southeastern Health Economic Study Group Conference, Chapel Hill, NC., October 19-20, 2007.
3. **Bradford WD**, Dolan P. “A Model of Adaptive Global Utility Maximization.” 71st meeting of the Health Economists' Study Group, Brunel University, Uxbridge, United Kingdom, September 5-7, 2007.
4. **Bradford WD**, Kleit AN. “The Impact of DTC on Switching Between Statin Drugs and the Duration of Lipid-Lowering Therapy.” International Health Economics 6<sup>th</sup> World Congress, Copenhagen, Denmark, July 8-11, 2007.
5. **Bradford WD**, Kleit AN. “The Impact of Advertising on Statin Drug Adherence and Attaining LDL Cholesterol Goals” Pharmaceutical Economics and Policy Council, Chicago, IL, January 7-8, 2007.

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6. **Bradford WD**, Kleit AN. "The Impact of Advertising on Statin Drug Adherence and Attaining LDL Cholesterol Goals" Federal Trade Commission, Bureau of Economic Research Roundtable on the Economics of the Pharmaceutical Industry. Washington, D.C., October 20, 2006.
7. **Bradford WD**, Zoller J, Silvestri G "Estimating the Effect of Individual Time Preferences on the Use of Disease Screening" Third Annual Southeastern Health Economics Study Group Conference, Miami, FL October 2006.
8. **Bradford, WD** and Kleit, A.N. "The Impact of Advertising on Statin Drug Adherence and Attaining LDL Cholesterol Goals" American Society of Health Economists, Madison, WI. June 4-7, 2006.
9. Wosinska, M, and **Bradford, W.D.** "Direct-to-Consumer Advertising, Media Publicity and Utilization of Prescription Drugs" American Society of Health Economists, Madison, WI. June 4-7, 2006.
10. **Bradford, WD**, Dismuke CE, Steyer T, Zoller J. "The Use of Detection Controlled Estimation to Estimate Physician Prescribing and Patient Purchase of Pharmaceuticals in Administrative Data for Asthma." International Health Economics Association 5<sup>th</sup> World Congress, Barcelona, Spain, July 2005.
11. **Bradford, WD.** "The Impact of Direct to Consumer Advertising for Statins on Physician Prescribing Behavior: International Health Economics Association 5<sup>th</sup> World Congress, Barcelona, Spain, July 2005.
12. **Bradford, WD.** "The Impact of Direct to Consumer Advertising on Prescription Drugs: FDA Hearing on Direct to Consumer Advertising, Washington DC, November 1, 2005.
13. **Bradford WD**, Jones WJ, Ward DM. "Medicaid and Managed Primary Care: The Role of South Carolina PEP" American Public Health Association 132nd Annual Meeting, Washington, D.C., November, 2004.
14. **Bradford WD**, Kleit AN, Neitert PJ, Steyer T, McIlwain T, Ornstein S. "The Impact of Direct to Consumer Advertising for Prescription Drugs on Physician Prescribing Behavior for the Treatment for Osteoarthritis." American Economic Association Annual Meetings, Philadelphia, PA, January 2005.
15. **Bradford WD**, Kleit AN, Neitert PJ, Steyer T, McIlwain T, Ornstein S. "The Impact of Direct to Consumer Advertising for Prescription Drugs on Physician Prescribing Behavior for the Treatment for Osteoarthritis" Second Annual Southeastern Health Economics Study Group Conference, Atlanta, GA, November 2004.
16. **Bradford WD**, Silvestri G, Zoller J. "Time preference and willingness to pay for preventive health services: an application to lung cancer screening." American Health Economics Conference, Birmingham, Alabama, April, 2004.
17. **Bradford WD**, Bearden L. "The impact of diabetes: Costs and resource utilization." American Health Quality Association Technical Meeting, New Orleans, Louisiana, March 2004.
18. **Bradford WD**, Silvestri G, Zoller J. "Time preference and willingness to pay for preventive health services: an application to lung cancer screening." International Health Economics Association Fourth International Conference, San Francisco, California, June 2003.
19. **Bradford WD**, Mobley L. "Employment-Based Health Insurance and the Effectiveness of Intra-Firm Competition Between Insurance Providers." Eleventh Annual Health Economics Conference, Washington, D.C., June 2000.



20. **Bradford WD.** “Direct to Consumer Advertising for Prescription Drugs: A Game Theoretic Model.” Eleventh Annual Health Economics Conference, Washington, D.C., June 2000.
21. **Bradford WD, Krumholz HM.** “The Effect of Managed Care Penetration on the Treatment of Acute Myocardial Infarction in the Fee-For-Service Medicare Population.” Ninth Annual Health Economics Conference, Ithaca, New York, June 1998.
22. **Chen YT, Bradford WD, Wang Y, Selzer J, Krumholz H.** “The impact of acute renal failure on cost in elderly patients with congestive heart failure.” International Society for Pharmacoeconomics and Outcomes Research Third Annual International Meeting, Philadelphia, Pennsylvania, May 1998.
23. **Bradford WD, Martin RN.** “A Theory of Referrals: Applications to the Medical Profession,” Fifth Northeast Regional Health Economics Research Symposium, Newport, RI, August 1997.
24. **Re RN, Krousel-Wood MA, Bradford WD, Kleit AN, Runnels J.** “A Computer Model for the Evaluation of the Economic Impact of Health Care Technology,” Association for Health Services Research, Chicago, Illinois, June 1997.
25. **Bradford WD, Kleit AN, Krousel-Wood MA, Re RN.** “Stochastic Frontier Estimation of Cost Models within the Hospital,” Advanced Workshop in Regulation and Competition: 16th Annual Conference, Lake George, New York, May 1997.
26. **Bradford WD.** “Pregnancy and the Demand for Cigarettes,” Southern Economic Association Annual Meeting, Washington, D.C., November 1996.
27. **Bradford WD.** “The Effect of State Medicaid Expenditures on the Quantity and Quality of Children Demanded by Welfare-Dependent Households,” Econometric Society Session at the Allied Social Sciences Association Annual Meetings, San Francisco, California, 1996.
28. **DeFelice LC, Bradford WD.** “Relative Inefficiencies Between Solo and Group Practice Physicians,” Southern Economic Association Annual Meeting, New Orleans, Louisiana, 1995.
29. **Bradford WD.** “Optimal Physician - Hospital Admission Privilege Contracting,” Southern Economic Association Annual Meeting, New Orleans, Louisiana, 1995.
30. **Bradford WD.** “The Effect of State Medicaid Expenditures on the Quantity and Quality of Children Demanded by Welfare Dependent Households,” Southern Economic Association Annual Meeting, New Orleans, Louisiana, 1995.
31. **Bradford WD.** “Solo Practice versus Partnerships in the Medical Profession: The Influence of Malpractice Risk,” Econometric Society Session at the Allied Social Sciences Association Annual Meetings, Boston, Massachusetts, 1993.
32. **Bradford WD.** “The Efficiency of Employment-Based Health Insurance: The Potential for Supra-Marginal Cost Pricing,” Southern Economic Association Annual Meeting, New Orleans, Louisiana, 1993.
33. **Bradford WD.** “Solo Practice Versus Partnerships in the Medical Profession: The Influence of Malpractice Risk,” Northeast Business and Economics Association Annual Meeting, Portsmouth, New Hampshire, 1993.
34. **Bradford WD.** “The Effects of a Relative Value Reimbursement Scheme on the Medical Market: Lessons from Medicaid,” Southern Economic Association Annual Meeting, Washington, D.C., 1992.
35. **Bradford WD.** “National Health Care and Quality of Service: Lessons from Medicaid,” Western Economic Association, International Annual Meeting, San Francisco, California, 1992.

36. **Bradford WD.** “A Structural Comparison of the Soft Drink and Malt Beverage Industries,” Western Economic Association, International Meetings, San Diego, California, 1990.
37. **Bradford WD.** “A Cost Benefit Study of Mandated Ethanol-Gasoline Blends,” (with C. Dahl), Allied Social Sciences Annual Meetings, Atlanta, Georgia, 1989.
38. **Bradford WD, Dahl C.** “Preliminary Report on the Effectiveness of a Mandatory Gasohol Program on Automotive Exhaust Emissions to the Year 2000,” (with C. Dahl), Southern Economic Association Meetings, Orlando, Florida, 1989.

## A.10. Invited Lectures and Non-Academic Presentations

1. “Can Credence Advertising Effects Be Isolated? Can They Be Negative?: Evidence From Pharmaceuticals.” Department of Economics, University of Georgia, Athens, GA; October 9, 2008.
2. “Advertising Search, Experience and Credence Characteristics: The Case of Prescription Pharmaceuticals.” Department of Economics, Rice University, Houston, TX; April 1, 2008.
3. “The Effect of Direct to Consumer Television Advertising on the Timing of Treatment.” Leonard Davis Institute Research Seminar, University of Pennsylvania, Philadelphia, PA; April 18, 2008.
4. “Advertising Search, Experience and Prestige Characteristics: The Case of Prescription Pharmaceuticals.” Department of Economics Seminar Series, University of South Carolina, Columbia, SC, October 5, 2007.
5. “Advertising Search, Experience and Prestige Characteristics: The Case of Prescription Pharmaceuticals.” Department of Economics Seminar Series, College of Charleston, Charleston, SC, October 5, 2007.
6. “The Impact of Direct to Consumer Advertising on Outcomes of Statin Therapy,” Lister Hill Center Seminar Series, Birmingham, AL, March 8, 2006.
7. “The Impact of Direct to Consumer Advertising on Prescription Drugs:” FDA Hearing on Direct to Consumer Advertising, Washington DC, November 1, 2005.
8. “The Impact of Direct to Consumer Advertising for Prescription Drugs on Physician Prescribing Behavior for the Treatment for Osteoarthritis.” Department of Economics Seminar Series, University of North Carolina – Greensboro, October 2004.
9. “Time preference and willingness to pay for preventive health services: an application to lung cancer screening.” Atlanta Federal Reserve Bank Seminar Series, Federal Reserve Bank, Atlanta, Georgia, July 2004.
10. “Pregnancy and the Demand for Cigarettes” Economics Spring 2001 Seminar Series, Department of Economics, University of South Carolina, February 2001.
11. “Pregnancy and the Demand for Cigarettes” Lister Hill Center for Health Policy 1999-2000 Seminar Series, University of Alabama at Birmingham, July 2000.
12. “Report on: Very Low Birth Weight Outcomes Project” (with L. Beardon, L. Szwebka, C. Gibson) South Carolina State Committee on Obstetrics and Gynecology, January 2000; and South Carolina Medical Association Committee on Perinatal Regionalization, January 2000.
13. “Cost-Benefit and Cost-Effectiveness Analysis Under Review” 4<sup>th</sup> Annual Practical Issues in Outcomes Measurement and Management Continuing Medical Education, New Orleans, Louisiana, April 1999.

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14. "Tools of the Trade – Resources for Economic Assessment" 4<sup>th</sup> Annual Practical Issues in Outcomes Measurement and Management Continuing Medical Education, New Orleans, Louisiana, April 1999.
15. "How to Use the Medical Literature in Practice: Economic Perspectives" 4<sup>th</sup> Annual Practical Issues in Outcomes Measurement and Management Continuing Medical Education, New Orleans, Louisiana, April 1999.
16. "Cost-Effectiveness and the Economics of Health Care," 3<sup>rd</sup> Annual Practical Issues in Outcomes Measurement and Management Continuing Medical Education, New Orleans, Louisiana, April 1998.
17. "Cost Effectiveness / Cost Benefit Analysis in Technology Assessment." 3<sup>rd</sup> Annual Practical Issues in Outcomes Measurement and Management Continuing Medical Education, New Orleans, Louisiana, April 1998.
18. "Pregnancy and the Demand for Cigarettes." Yale University, Department of Epidemiology and Public Health Seminar Series, November 1997.
19. "Cost Effectiveness and the Economics of Health Care," 2<sup>nd</sup> Annual Practical Issues in Outcomes Measurement and Management Continuing Medical Education, New Orleans, Louisiana, April 1997.
20. "The Effectiveness of Catheterization on Mortality from Acute Myocardial Infarction when Controlling for Selection Effects in an Elderly and Non-Elderly Population." Yale University, Department of Epidemiology and Public Health Seminar Series, December 1996.
21. "Medicaid Generosity and the Size of Welfare Dependant Families," Boston University / MIT / Harvard Health Economics Seminar, February 1996.

## A.11. Professional Service

### A.11.1. Professional Organizations

- *Advisory Board Member:* American Society of Health Economists
- *Co-Editor:* Health Economics Letters, peer-reviewed journal published by John Wiley and Sons.
- *Editorial Board:* Health Economics, peer-reviewed journal published by John Wiley and Sons.
- *Steering Committee Chair:* Southeastern Health Economics Study Group
- *Steering Committee Member:* Annual Health Economics Conference

### A.11.2. National Policy Sessions

- Writer for American College of Cardiology Bethesda Conference #33, Preventative Cardiology, December 2001.

### A.11.3. Study Session Participation and Proposal Review:

- Permanent Member, Review Committee for National Institutes of Health, Health Services Organization and Delivery (HSOD) Section. October 2008 to present.

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- Review Committee for AHA Pharmaceutical Roundtable (PRT) Outcomes Research Center Award Study Section, American Heart Association, June 2008.
- Review Committee for National Institutes of Health, Health Services Organization and Delivery (HSOD) Section. June, 2007, June 2008.
- Review Committee for National Institute on Mental Health, Services Research Section. February 7, 2007.
- Review Committee for National Institute on Aging, Program Project Section (ZAG1 ZIJ-9 (O3)). June 2006.
- Review Committee for American Heart Association, Outcomes Study Section, October 2001.
- Review Committee for Agency for Health Care Policy and Research, HS-00-001: Health Care Markets and Managed Care, Rockville MD, February 2000.
- Reviewer for National Science Foundation, Economics Program (Program Announcement: GPG, NSF 99-2), November 1999, November 2003, March 2006.
- Review Committee for National Institute for Alcohol and Alcohol Abuse, ZAA1 FF: Health Services Research on Alcohol-Related Problems, Bethesda, MD, July 1997.
- Review Committee for Centers for Disease Control and Prevention, PE Fellows Class, March 2004, March 2005, March 2006, March 2007.

#### A.11.4. Discussant and Session Chair:

- Inaugural Conference of the American Society of Health Economists, June 4-7, 2006; Southeast Health Economics Study Group Symposium Review Panel 2003, 2004, and 2005; 14<sup>th</sup> European Workshop on Health Economics 2005; International Health Economics Association 5<sup>th</sup> World Congress 2005; American College of Cardiology Annual Meeting 2004; Southern Economic Association Annual Meeting, 1996; Seventh Annual Health Economics Conference, 1996; American Economic Association Annual Meeting, 1996; Fourth Annual Northeast Regional Research Symposium, 1995; Southern Economics Association Annual Meeting, 1995; Southern Economics Association Annual Meeting, 1993; Southern Economic Association Annual Meeting, 1992; Western Economic Association, International Annual Meeting, 1992.

#### A.11.5. Referee:

- *Children's Health Care, Economic Inquiry, Journal of Health Economics, Health Economics, Health Services Research, Inquiry, International Economic Review, Hypertension, Journal of Business Research, Journal of Clinical Epidemiology, Journal of Health Economics, Journal of Political Economy, Medical Care, Review of Industrial Organization.*

### A.12. Legal Consults Involving Testimony and Deposition

- United States v. Mark Steven Miller In re: Claim of William R. Davidson: Case No. 3:02CR722; deposition given on 7/29/04. (Contact attorney: Betty J. Konen, Assistant U.S. Attorney, U.S. Department of Justice, Cleveland, Ohio.)
- Lowcountry Orthopaedic, PA, J. David Dalton, M.D., Joel R. Cox, M.D., Michael A Maginnis, M.D., and James J. McCoy, M.D. v. Trident Medical Care Center, LLC and HCA Inc.: Case No.

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99-CP-08-2279; deposition given on 8/24/04. (Contact attorney: Richard Farrier, Nelson Mullins Riley & Scarborough, Charleston, South Carolina.)

- Alexis Sams and all others similarly situated vs. Palmetto Health Alliance d/b/a Palmetto Richland and Palmetto Baptist.: Case No. 04-CP-40-4168; and Frances Bonetto and all others similarly situated vs. Palmetto Health Alliance d/b/a Palmetto Richland and Palmetto Baptist.: Case No. 04-CP-40-4362; deposition given on October 20, 2005. (Contact attorney: Daniel C. Leonardi, Nexsen Pruet Adams & Kleemeier, LLC, Columbia, South Carolina.)
- Martha Ward on behalf of herself and others similarly situated vs. Dixie National Life Insurance Company and National Foundation Life Insurance Company: Case No. 03-3-3239-17; deposition given on December 20, 2005. (Contact attorney: J. Calhoun Watson, Sowell Gray Stepp & Laffitte, LLC, Columbia, South Carolina.)

### A.13. Legal Consults Involving Testimony Only

- Bridget Kennedy, as Administratrix of the estate of Zakiya Kennedy, deceased, vs. Ortho-McNeil Pharmaceutical, Inc., Johnson and Johnson, Columbus & 103<sup>rd</sup> Street Drug Corp., the Mount Sinai Hospital, and Thain Rousseau-Pierre, MD: Supreme Court of the State of New York, County of New York, Index No: 106921/05. (Contact attorney: Terry Tottenham, Fulbright & Jaworski, LLP, Austin, Texas.)
- Ronald Drazin et al., vs. Horizon Blue Cross Blue Shield of New Jersey, et al.: Civil Action No. 06-6219. (Contact attorney: Randee M. Matloff, Esq., Nagel Rice, LLP, Roseland, New Jersey.)

### A.14. Departmental and University Service

#### A.14.1. Department of Public Administration and Policy, University of Georgia

- Faculty Executive Committee, 2008 to present
- External Funding Committee, 2008 to present

#### A.14.2. Medical University of South Carolina

- Faculty Convocation Committee Chair, 2002-2003
- Faculty Convocation Committee, 2000-2004
- Healthy South Carolina Advisory Board, 2000-2003
- Department of Medicine Roundtable on National Health Insurance, Panelist, 2000
- MUSC University Research Council, 2001-present
- MUSC Planning Committee, CTSA Project, April 2006-present

#### A.14.3. College of Health Professions, Medical University of South Carolina

- College of Health Professions Tenure Committee Chair, 2001-2002
- Dean's Council, 2002-present
- Chair, Faculty Assembly, 2005-2006

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- Student Scholarship and Faculty Award Committee Chair, 2002-2005

#### **A.14.4. Department of Health Administration and Policy, Medical University of South Carolina**

- Faculty Promotion Committee, 2000-2001
- Research Committee Chair, 1999-2001
- Health Administration and Policy Departmental Hiring Committee, 2001-2002
- DHA Leadership Committee, 2001-2002
- Director, Health Economics Research Unit, 1999-2002

#### **A.14.5. Center for Health Economic and Policy Studies, Medical University of South Carolina**

- Director, 2003-present

#### **A.14.6. Center for Health Care Research, Medical University of South Carolina**

- Faculty Search Committee, 1998-1999
- Visiting Scholar Program Director, 1998-2001
- Executive Committee, 2000-2001

#### **A.14.7. Department of Economics, University of New Hampshire:**

- Hiring Committee for McKerley Endowed Chair in Health Economics, 1997-1998
- Graduate Theory Exam Committee, 1991-1998
- Department of Economics Graduate Program Coordinator, 1996-1997
- Undergraduate Program Committee, 1991-1993
- Graduate Program Committee, 1993
- Graduate Program Committee 1995-1997
- Faculty Recruiting Committee, 1991-1992
- Faculty Recruiting Committee, 1993
- Faculty Recruiting Committee, 1996.

#### **A.14.8. University of New Hampshire:**

- University Graduate Council, 1993-1995.

## A.15. Teaching Responsibilities

- Advanced Topics in Statistical Modeling, (Ph.D. level, Department of Public Administration and Policy, University of Georgia).
- Program Evaluation, (Masters and Ph.D. level, Department of Public Administration and Policy, University of Georgia).
- Logical Tools for Decision Making, (Doctoral level, Department of Health Administration and Policy, Medical University of South Carolina).
- Health Care Financial Management, (Doctoral level, Department of Health Administration and Policy, Medical University of South Carolina).
- Microeconomic Theory I, (Ph.D. level, Department of Economics, University of New Hampshire).
- Industrial Organization II, (Ph.D. level, Department of Economics, University of New Hampshire).
- Health Economics, (Undergraduate level, Department of Economics, University of New Hampshire; Master's level, Department of Health Management and Policy, University of New Hampshire; Master's Level, Department of Health Administration and Policy, Medical University of South Carolina).
- Intermediate Microeconomic Theory, (Department of Economics, University of New Hampshire).
- Principles of Economics, (Undergraduate level, Department of Economics, University of New Hampshire; Department of Economics, Louisiana State University).

## A.16. Professional Organizations

- American Economic Association
- American Society of Health Economists
- International Health Economics Association
- Omicron Delta Epsilon
- Southern Economic Association
- Western Economic Association

## A.17. Personal

- Birth Date: January 27, 1965.
- Marital Status: Married, two children.
- Citizenship: U.S.A.



## A.18. References

- Dr. James F. Burgess, Jr.  
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State University of New York at Stony Brook  
Stony Brook, NY 11794-4384  
(631) 632-7526



## Appendix B: Materials considered

### B.1. Litigation documents

- Expert report of Mark G. Duggan, United States District Court for the District of Massachusetts, Civil Action No. 05-11084-PBS, January 23, 2009 and materials considered.
- Expert report of Theodore R. Marmor, United States District Court for the District of Massachusetts, Civil Action No. 06-11337-PBS, June 20, 2008 and materials considered.
- Supplemental Expert Report of Theodore Marmor, In re: Pharmaceutical Industry Average Wholesale Price Litigation, Civil Action No. 05-11084-PBS, January 21, 2009.
- Expert report of Stephen W. Schondelmeyer, United States District Court for the District of Columbia, Civil Action No. 07-02017, November 13, 2007.
- Expert report of Matthew Perri III, United States District Court for the District of Massachusetts, Civil Action No. 05-11084-PBS, January 21, 2009 and materials considered.
- Expert report of Simon D. Platt, United States District Court for the District of Massachusetts, Civil Action No. 05-11084-PBS, January 23, 2009 and materials considered.
- Expert report of Stephen W. Schondelmeyer, United States District Court for the District of Massachusetts, Civil Action No. 05-11084-PBS, January 29, 2009 and materials considered.
- United States' Complaint, United States District Court for the District of Massachusetts, Civil Action No. 05-11084-PBS, August 24, 2006.
- United States' First Amended Complaint, United States District Court for the District of Massachusetts, Civil Action No. 05-11084-PBS, September 29, 2008.

### B.2. Academic literature

- Abt Associates, Inc., "Case Study of the Texas Vendor Drug Program's Approach to Estimating Drug Acquisition Costs: Final Report," September 26, 2005.
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- Campana, David, State of Alaska Medicaid pharmacy program manager, August 19-21, 2008.
- Chapman, Allen D., former Colorado Medicaid pharmacy manager, December 15, 2008.
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- Clifford, Margaret, Medicaid Pharmacy Administrator, New Hampshire Department of Health and Human Services, October 29, 2008.
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- DeParle, Nancy, former commissioner, Tennessee Department of Human Services, former administrator, Health Care Financing Administration, December 5, 2007 & May 18, 2007.
- Dubberly, Jerry, Chief of the Division of Medical Assistance, Georgia Department of Community Health, December 15, 2008.
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- Duzor, Deirdre, CMS Director of the Pharmacy Division for Medicaid, February 27, 2007, October 30, 2007 & March 26, 2008.
- Eiler, Cheryl, Business Systems Analyst, AdminaStar, August 26 & 28, 2008 & September 23, 2008.
- Erick, Matthew, Senior vice president of market development for generic pharmaceuticals, Cardinal Health, June 17, 27, 2008.
- Fine, Joseph, Maryland Department of Public Health, December 9, 2008.
- Farrand, Lisa, Pharmaceutical Services Specialist, New Hampshire Medicaid Department of Health and Human Services, October 28, 2008.
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- Sullivan, Harry Leo, Director of Pharmacy Services, TennCare, March 12, 2008.
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| ▪ KYDMSPL1012218-1012220.     | ▪ 2008 Consulting Contract between SXC Health Solutions and State of South Dakota for State Maximum Allowable Cost services with attachments. Dey Exhibit 911. | ▪ Deposition of James Parker, Deputy Administrator of Medical Programs, Illinois Department of Healthcare and Family Services Division of Medical Programs, November 18, 2008, Exhibit Parker 010. |
| ▪ KY_DMS_0000000012057 3-574. |  |  |
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| ▪ MA012291.                   |  |  |
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| ▪ California: 2002                         | ▪ Louisiana: 2001 |
| ▪ California: 2007                         | ▪ Louisiana: 2007 |
| ▪ Connecticut: 1987                        | ▪ Minnesota: 2006 |
| ▪ Idaho: 1998                              | ▪ Nevada: 2007    |
| ▪ Indiana: 2004                            | ▪ Oklahoma: 2000  |
| ▪ Indiana: 2007                            | ▪ Texas: 2002     |
| ▪ Kansas: 1992                             | ▪ Wyoming: 1990   |
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## B.9. Publicly available documents

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- Reeder, C. E., “Estimation of Average Dispensing Cost and Drug Acquisition Cost for the South Carolina Medicaid Drug Program: Final Report”, Submitted to South Carolina Department of Health and Human Services, June 15, 2003, p. 38. [SCDHHSS-Abbott-005315]
- Smith, Lisa K., “Respiratory's New Coding Headache,” HME Today, May 4, 2002. Available at [http://www.hmetoday.com/issues/articles/2002-05\\_04.asp](http://www.hmetoday.com/issues/articles/2002-05_04.asp).
- Ven-A-Care, “Letter to Bruce Vladeck, Administrator of HCFA,” October 2, 1996.

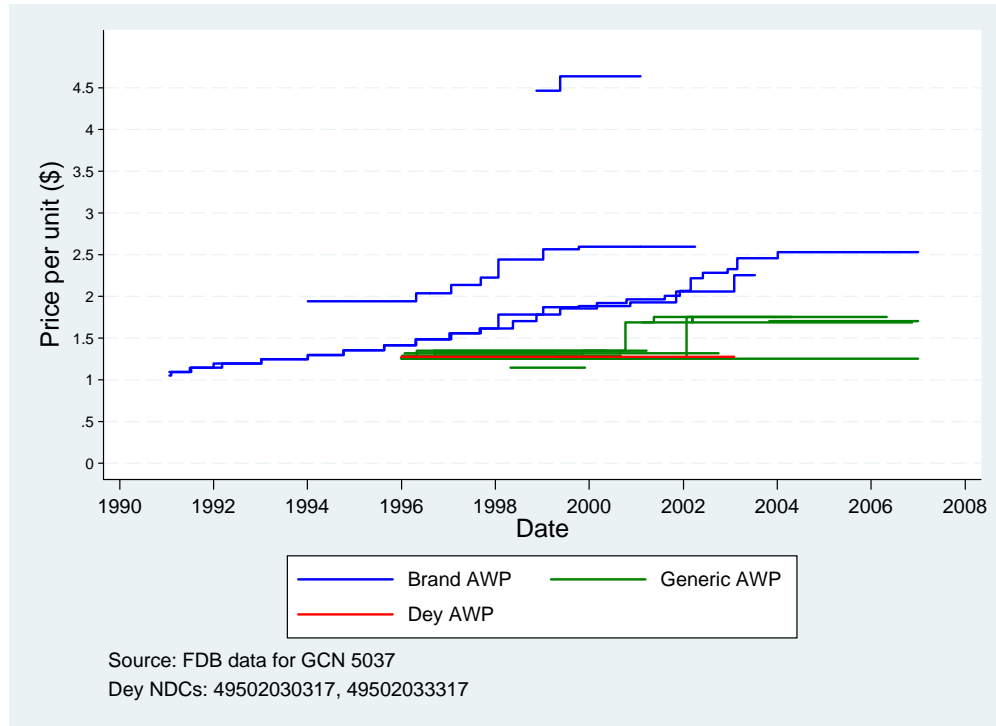
## B.10. Data

- Cardinal wholesaler data
- McKesson wholesaler data (14 state production)
- McKesson wholesaler data (37 state production)
- First DataBank data
- Medi-Span data
- RedBook data
- AMP data
- CMS state utilization data
- Dey direct data
- Dey indirect data
- DOJ revised-AWPs
- Dr. Duggan's Dey indirect data quarterly extracts
- Dr. Duggan's DMERC arrays (as compiled by Myers & Stauffer)
- Dr. Duggan's state policy documents (compiled by Myers and Stauffer)
- Dr. Duggan's weighted indirect pharmacy prices
- Grant Thornton data
- Medical CPI data from BLS
- Medicare Carrier claims data (not used in analysis)
- Medicare DMERC claims data
- Medicare Outpatient claims data (not used in analysis)
- Medicare PSPS summary claims data - through 2005 (government only produced through 2003 but we purchased through 2005)
- MSIS data
- NPC state reimbursement policies
- SDUD data
- SMRF/MAX data
- State claims data for: AK, AL, AR, CA, CT, DE, FL, GA, HI, ID, IL, KS, KY, LA, MA, ME, MI, MN, MO, NC, NE, NM, NY, OH, PA, RI, SC, UT, VA, and WI
- MAC data for AL, AR, GA, HI, IL, KS, KY, MA, ME, MN, MN, NC, NY, UT, WI, and WY

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## Appendix C: FDB charts

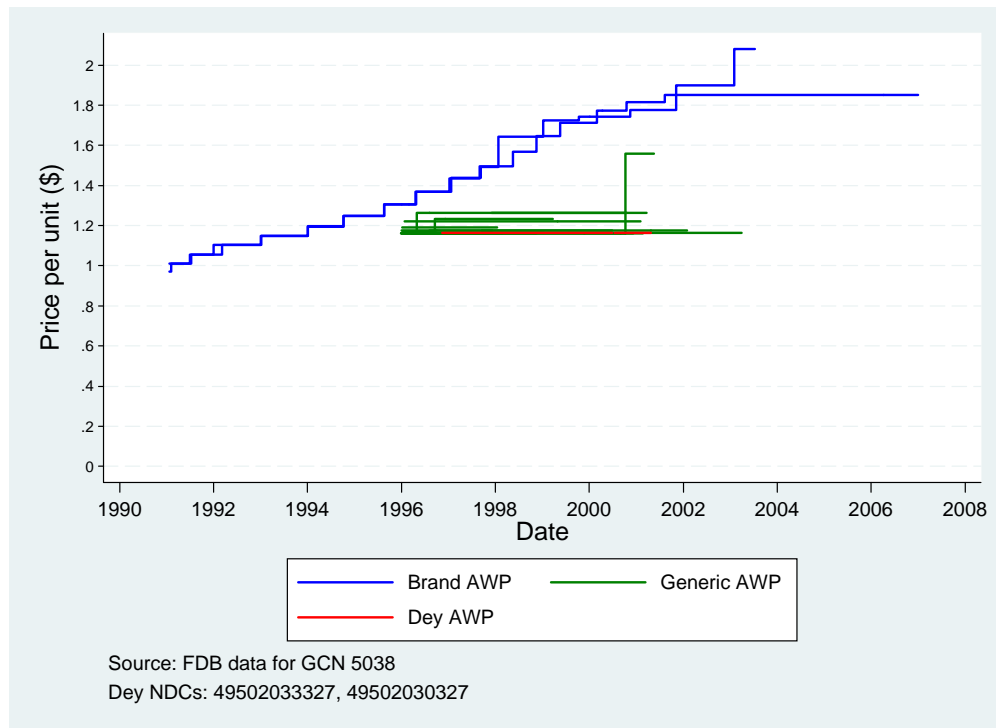
**Figure 1: FDB AWP graph for GCN 5037**



Source: FDB data

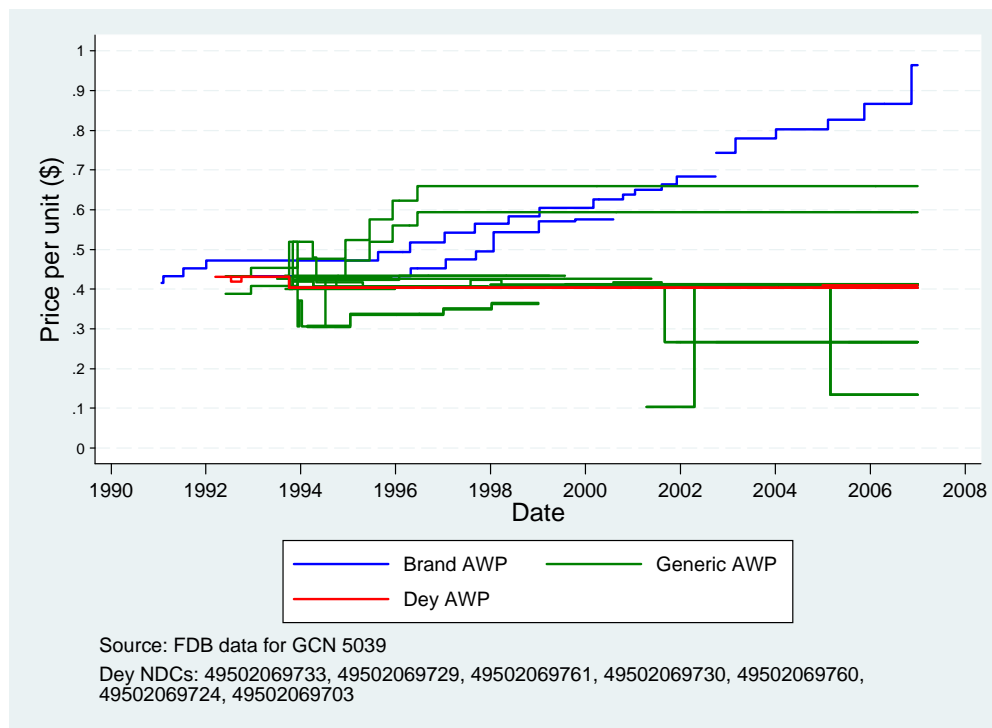
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**Figure 2: FDB AWP graph for GCN 5038**



Source: FDB data

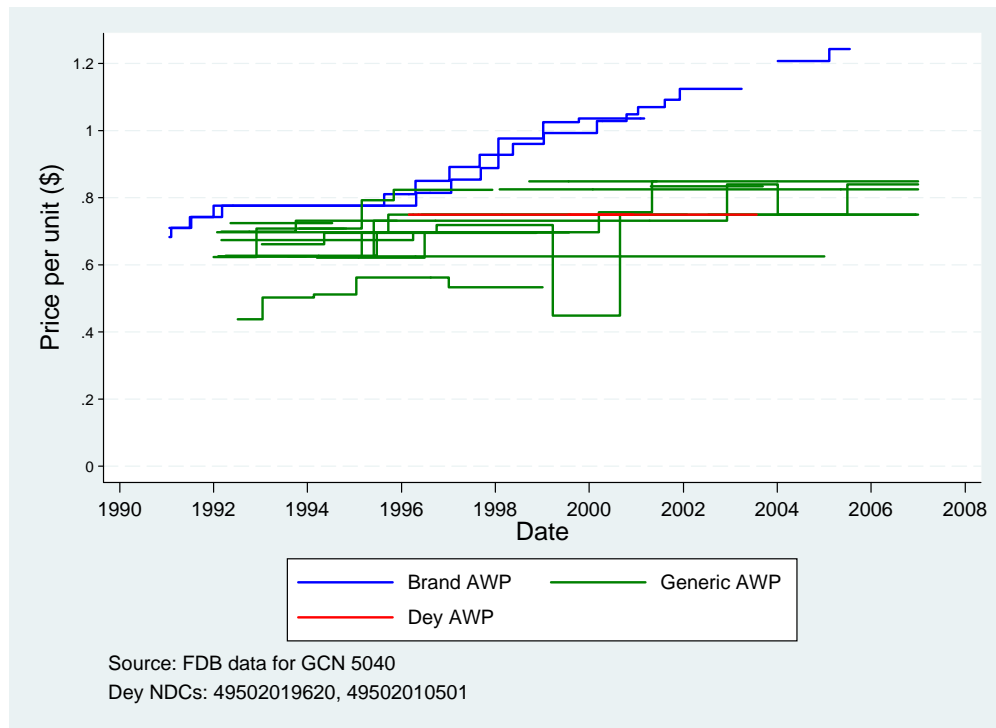
**Figure 3: FDB AWP graph for GCN 5039**



Source: FDB data

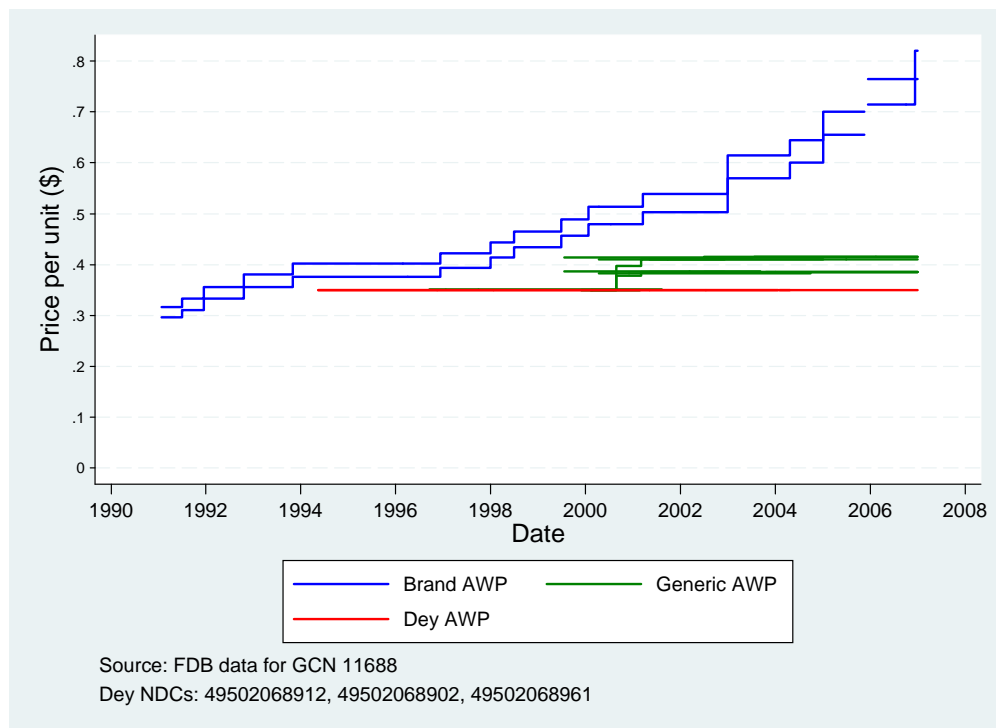
Appendices to the Expert Report of Professor David Bradford, Ph.D.

**Figure 4: FDB AWP graph for GCN 5040**



Source: FDB data

**Figure 5: FDB AWP graph for GCN 11688**

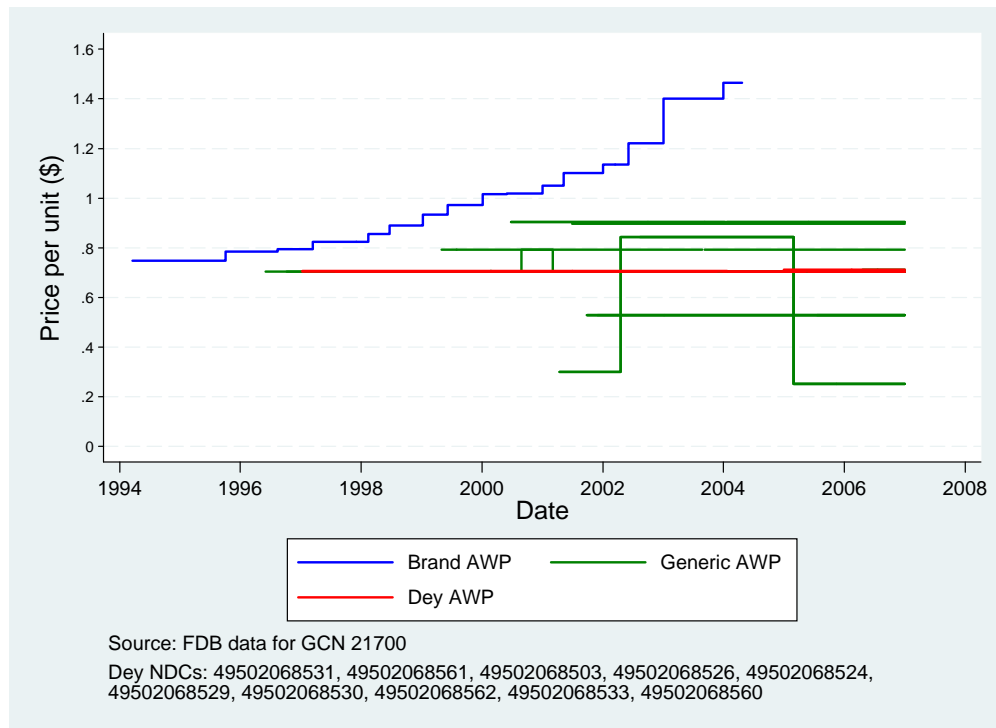


Source: FDB data



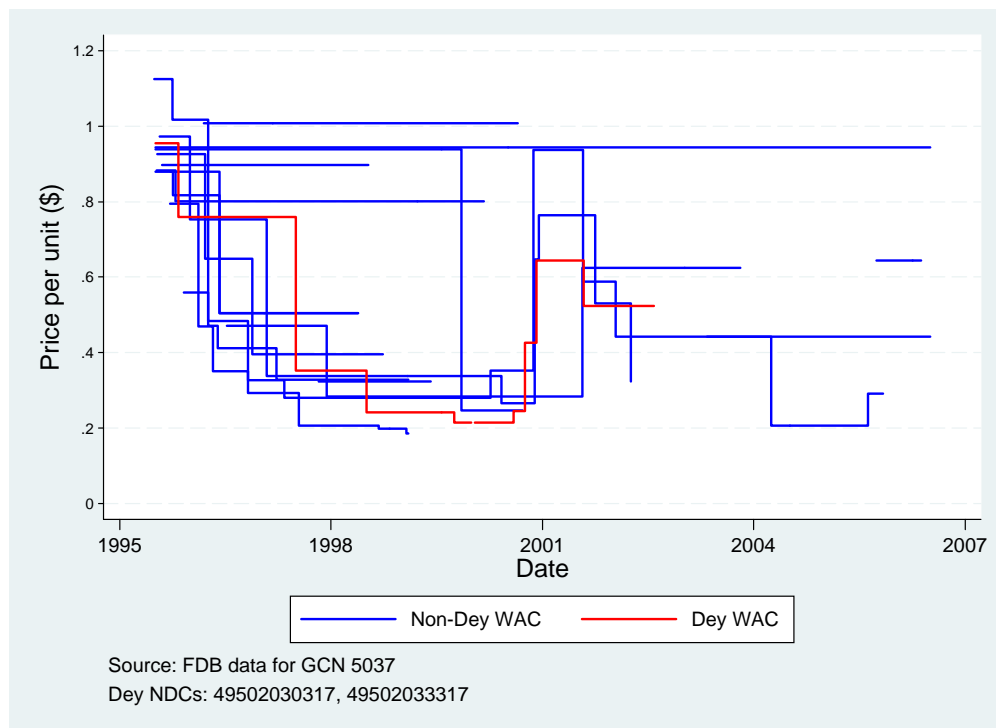
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**Figure 6: FDB AWP graph for GCN 21700**



Source: FDB data

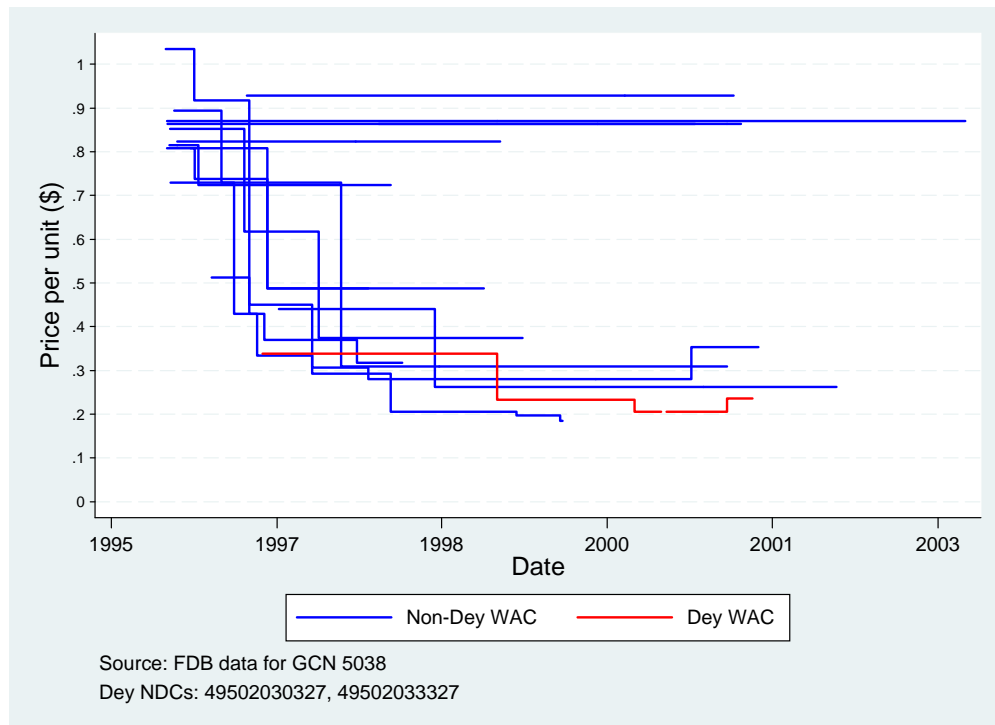
**Figure 7: FDB WAC graph for GCN 5037**



Source: FDB data

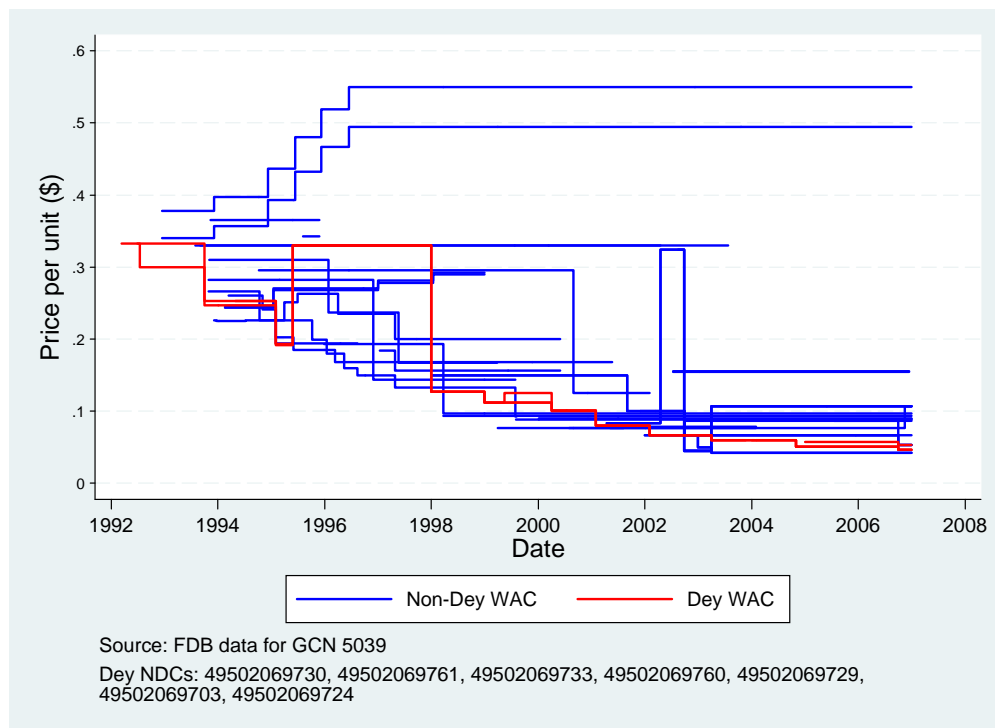
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**Figure 8: FDB WAC graph for GCN 5038**



Source: FDB data

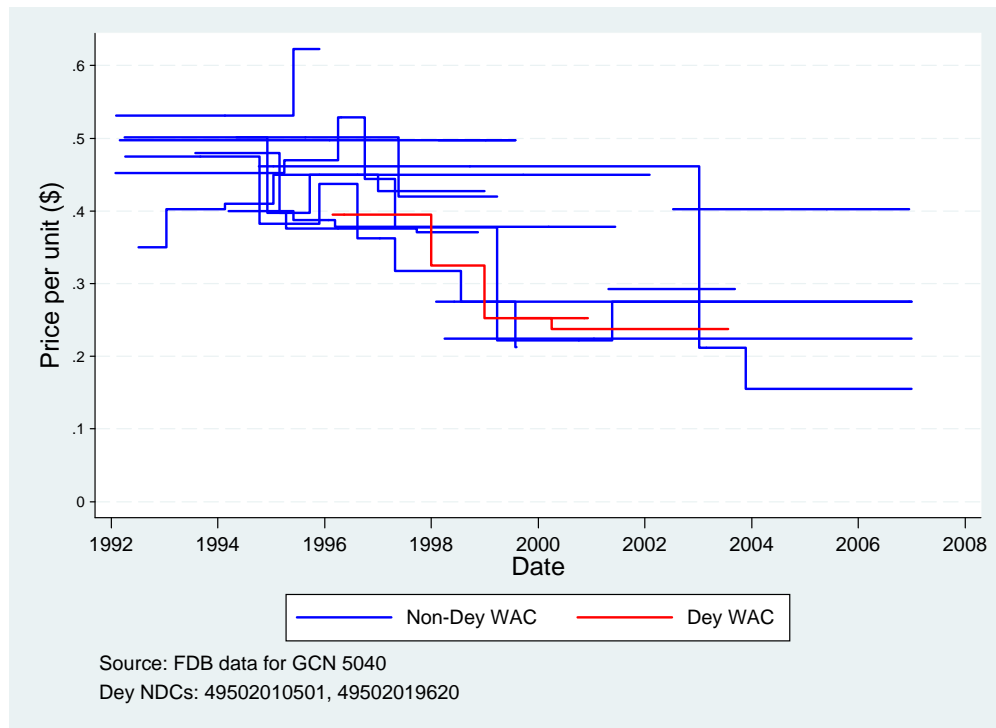
**Figure 9: FDB WAC graph for GCN 5039**



Source: FDB data

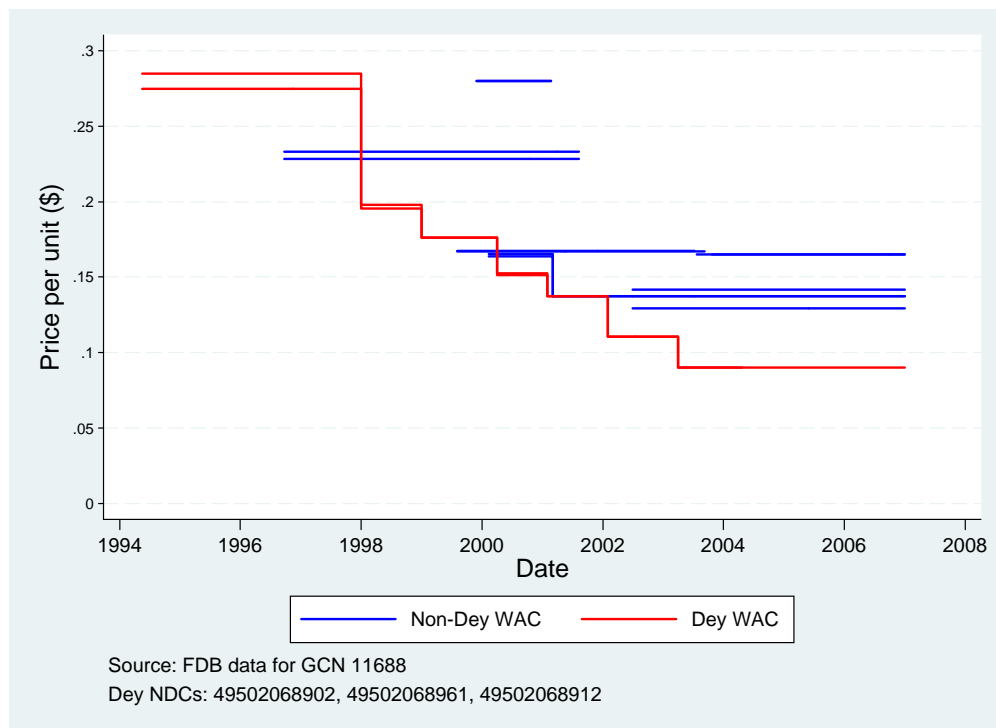
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**Figure 10: FDB WAC graph for GCN 5040**



Source: FDB data

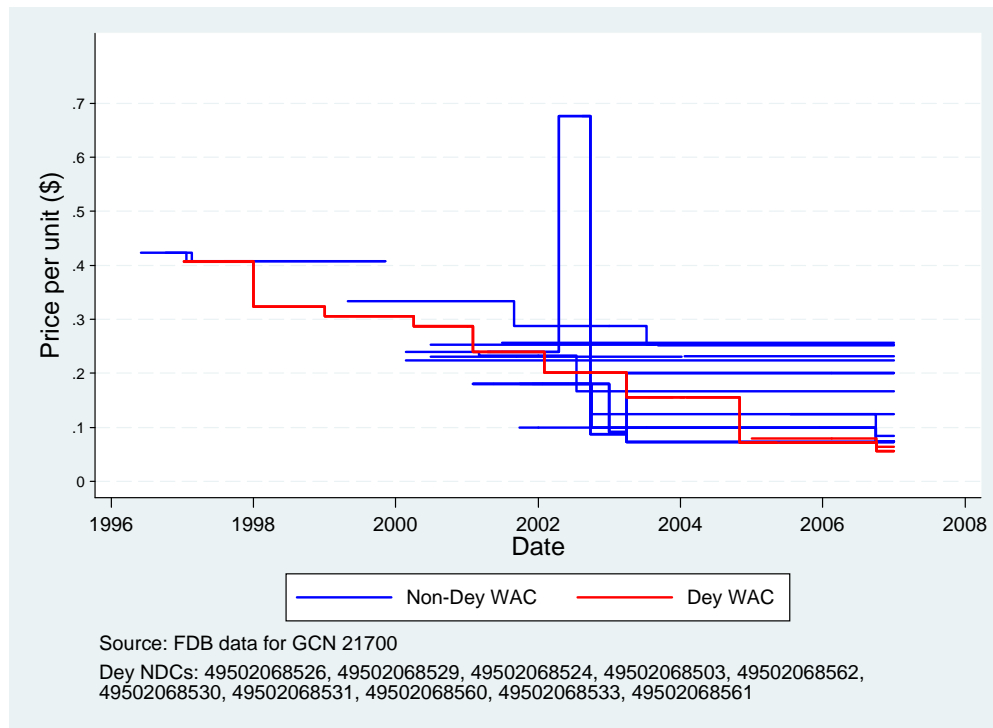
**Figure 11: FDB WAC graph for GCN 11688**



Source: FDB data

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**Figure 12: FDB WAC for GCN 21700**



Source: FDB data

## C.1. Albuterol WAC in different pricing compendia

1. Generally, the WAC price in the three published pricing compendia are consistent. However, for Dey's albuterol sulfate NDCs the prices published by FDB differed from the other two pricing compendia on several occasions. On February 12, 1995 Dey's WAC for albuterol sulfate in the FDB data was lowered to \$0.19 per mL. Red Book data for the same NDC begins on May 1, 1995 and reports the same WAC. This WAC is further corroborated by the introduction of the Medi-Span data, which begins on May 1, 1996. But FDB reported a revised WAC of \$0.33 on May 30, 1995, when both Medi-Span and Red Book reported a WAC of \$0.19. Furthermore, Red Book and Medi-Span subsequently revised the listed WAC to \$0.15 while FDB continued to list WAC at \$0.33. It was not until January 1, 1998 that all three compendia reported the same price; at this point the published WAC was revised to \$0.1267. Dey employees have testified that Dey notified all the pricing compendium of the revised lower WAC.<sup>1</sup>

<sup>1</sup> Deposition of Robert Mozak, Vice President of Sales and Marketing, Dey, March 13, 2003, pp. 1021-23.

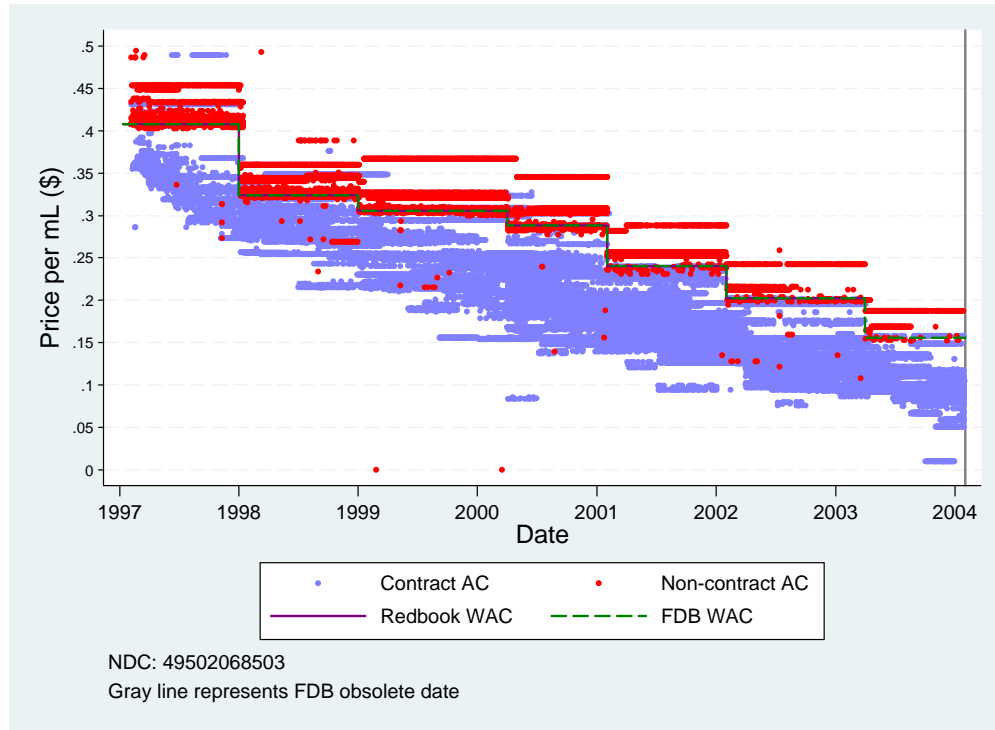
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2. Thus in my analyses I am primarily relying on the Red Book data when available. A review of Dr. Duggan's workpapers show that he had possession of both the FDB and Red Book data. However, he chose to rely exclusively on the FDB data in his analyses. Based on the discussion above, information published in Red Book appears to be more reliable for Dey's albuterol sulfate WAC.

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## Appendix D: Wholesaler charts

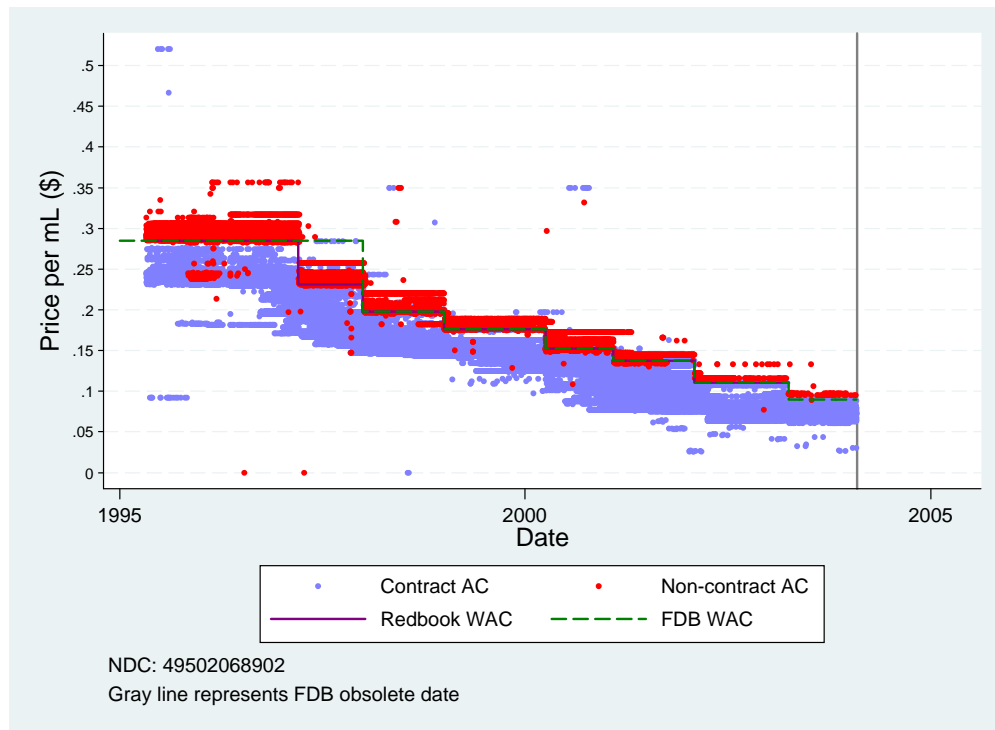
**Figure 13: Contract price scatter for NDC 49502068503**



Source: Wholesaler, FDB, and Red Book data

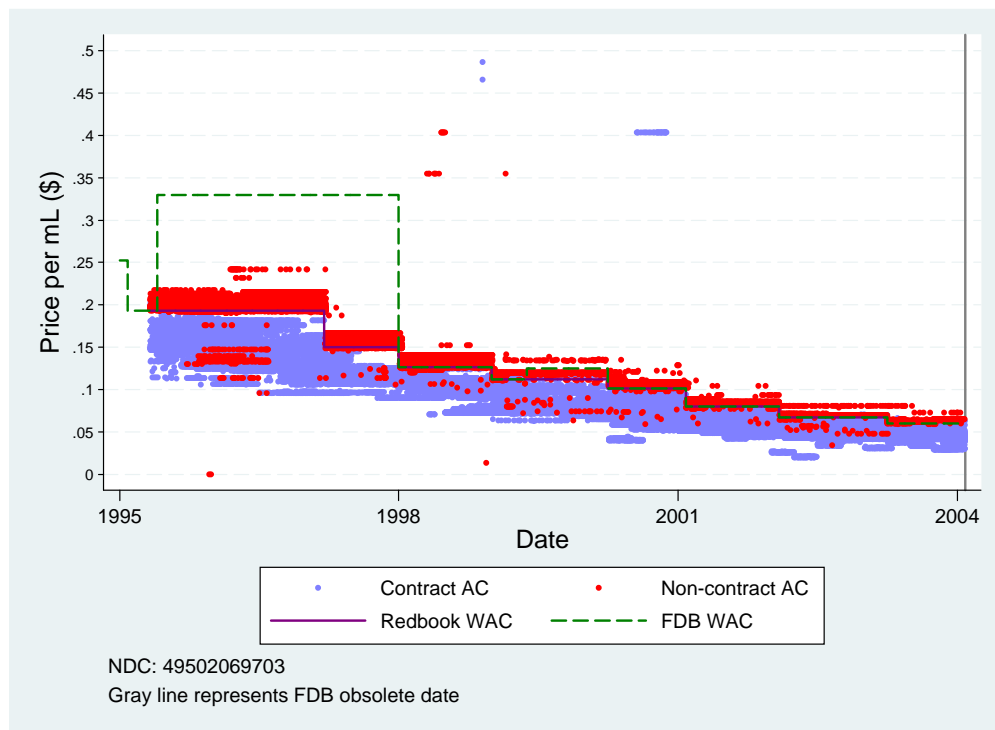
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**Figure 14: Contract price scatter for NDC 49502068902**



Source: Wholesaler, FDB, and Red Book data

**Figure 15: Contract price scatter for NDC 49502069703**

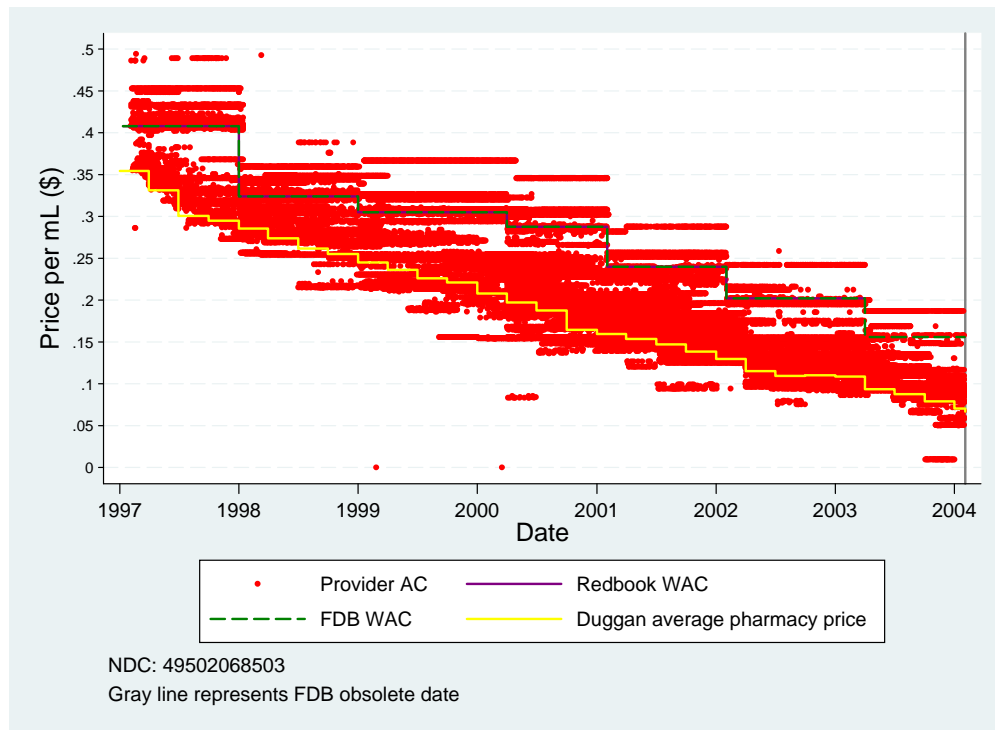


Source: Wholesaler, FDB, and Red Book data



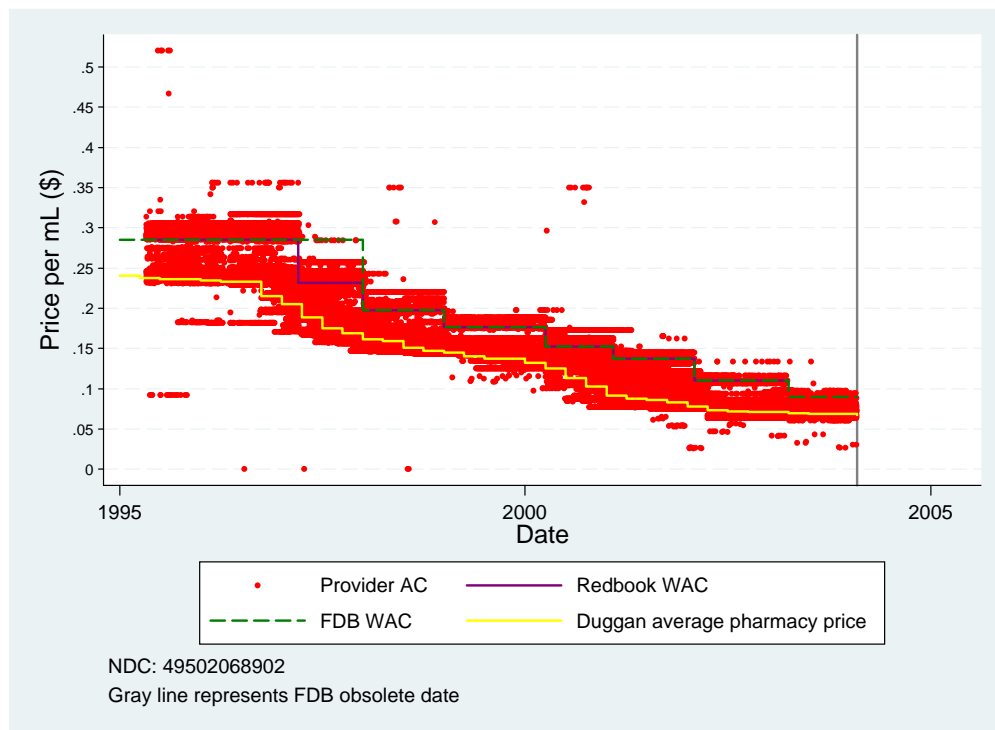
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**Figure 16: Price scatter for NDC 49502068503**



Source: Wholesaler, FDB, Red Book, Dey chargeback data

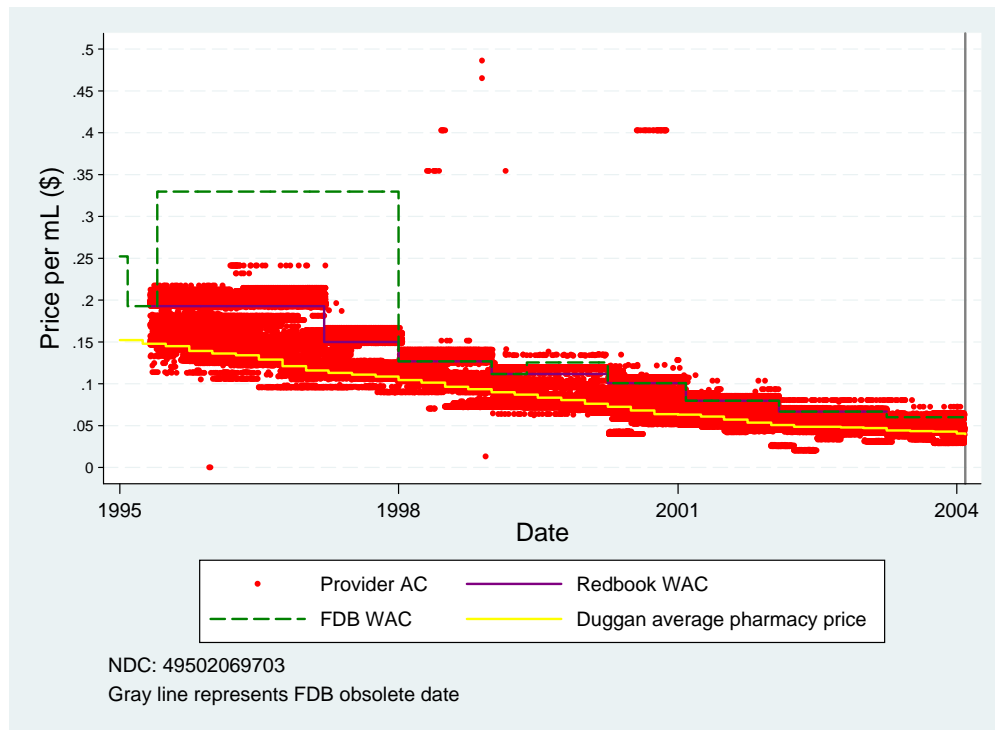
**Figure 17: Price scatter for NDC 49502068902**



Source: Wholesaler, FDB, Red Book, Dey chargeback data

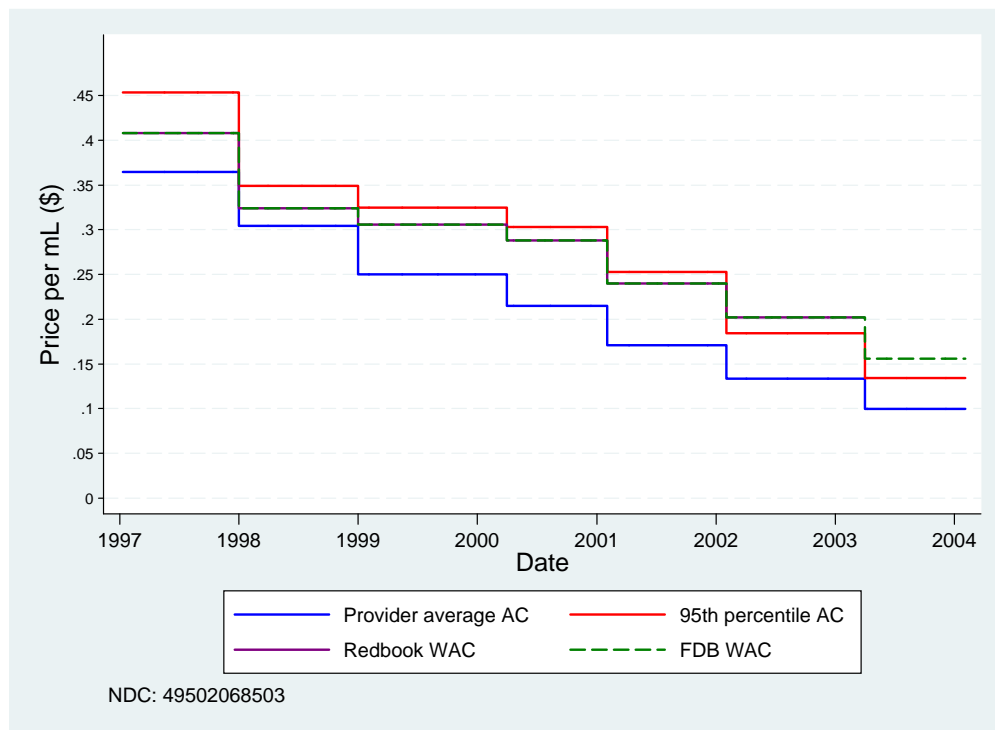
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**Figure 18: Price scatter for NDC 49502069703**



Source: Wholesaler, FDB, Red Book, Dey chargeback data

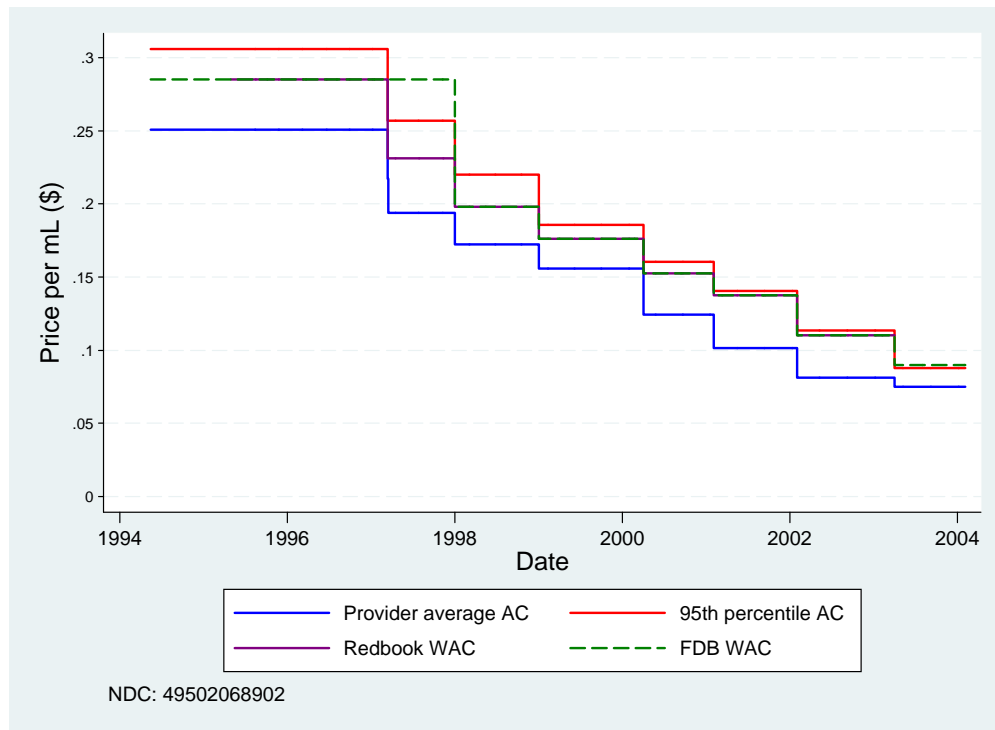
**Figure 19: WAC period line graph for NDC 49502068503**



Source: Wholesaler, FDB, and Red Book data

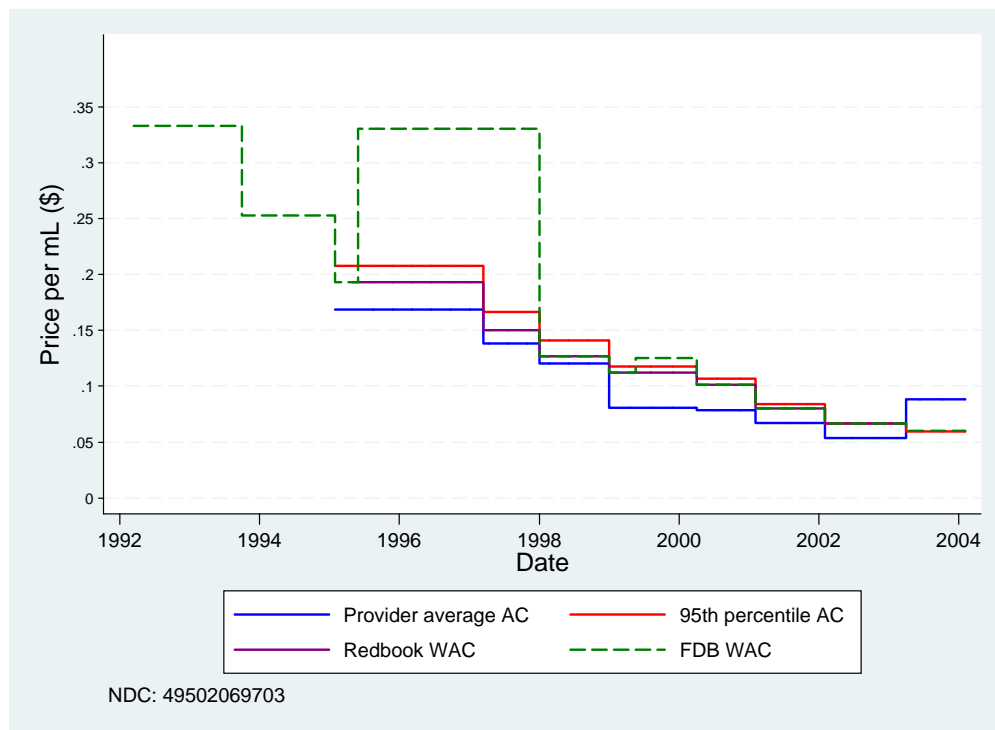
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**Figure 20: WAC period line graph for NDC 49502068902**



Source: Wholesaler, FDB, and Red Book data

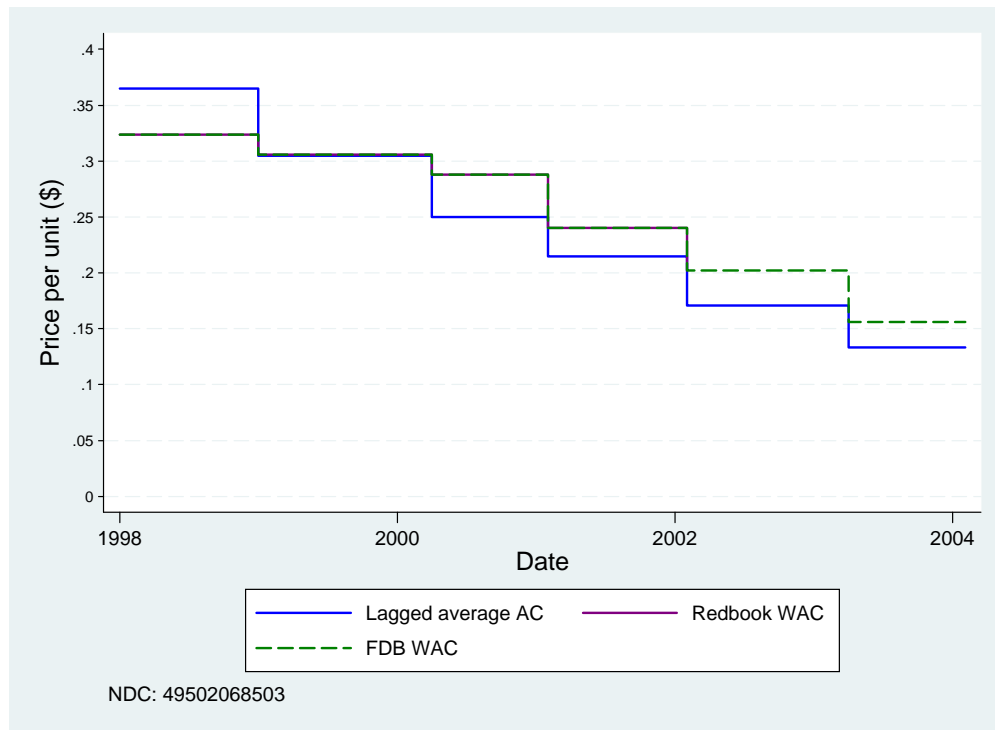
**Figure 21: WAC period line graph for NDC 49502069703**



Source: Wholesaler, FDB, and Red Book data

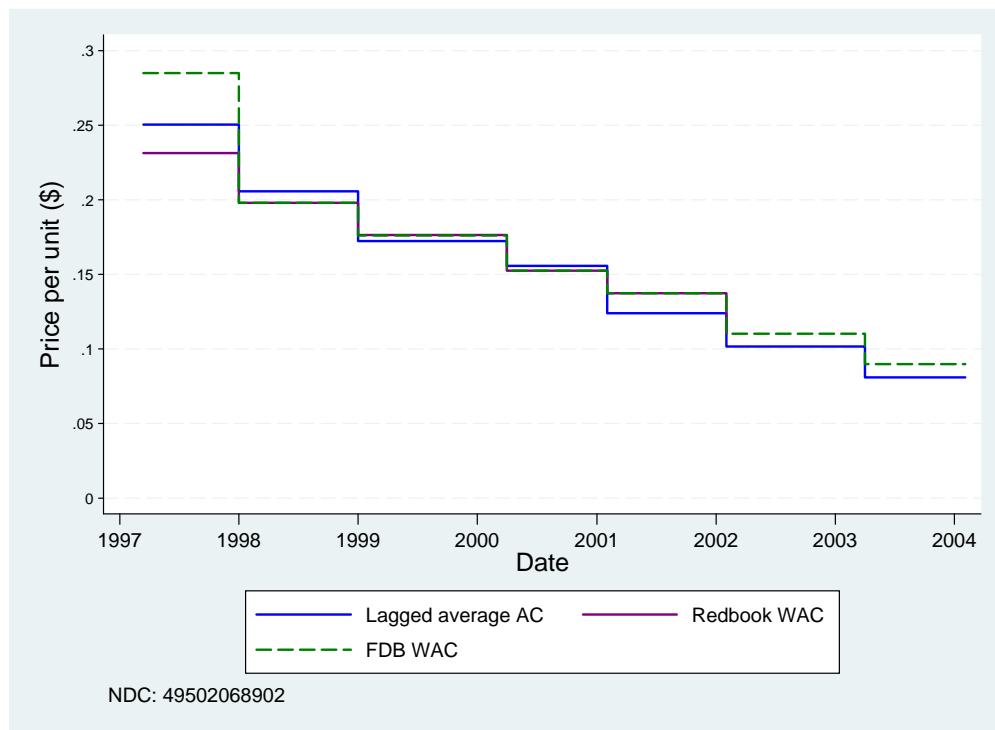
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**Figure 22: Lagged price graph for NDC 49502068503**



Source: Wholesaler, FDB, and Red Book data

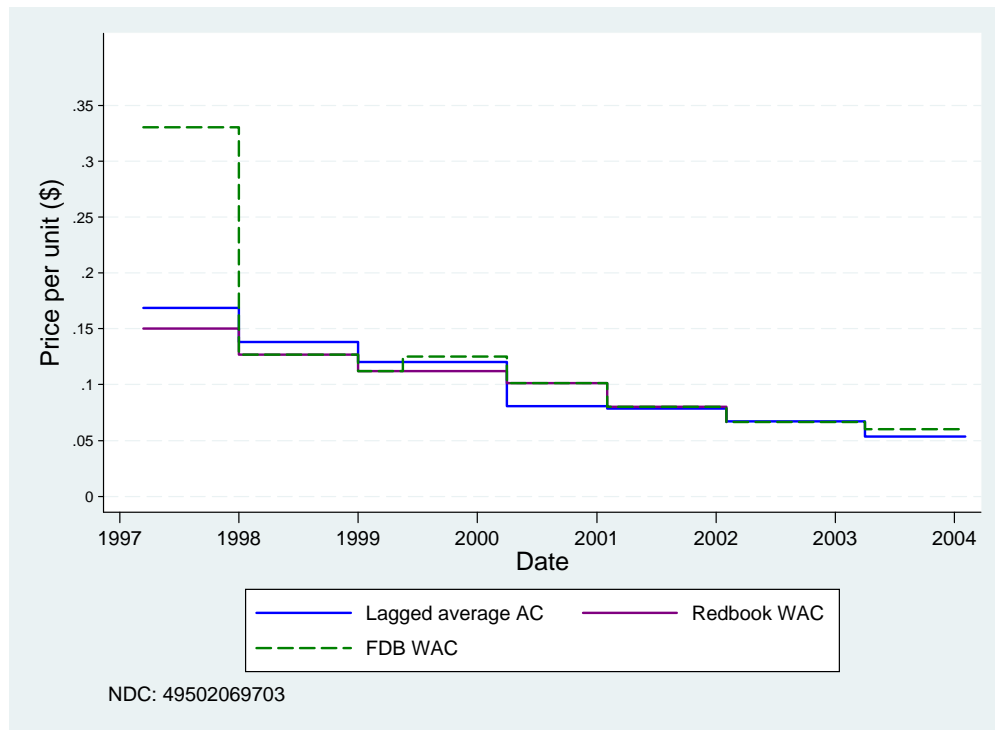
**Figure 23: Lagged price graph for NDC 49502068902**



Source: Wholesaler, FDB, and Red Book data

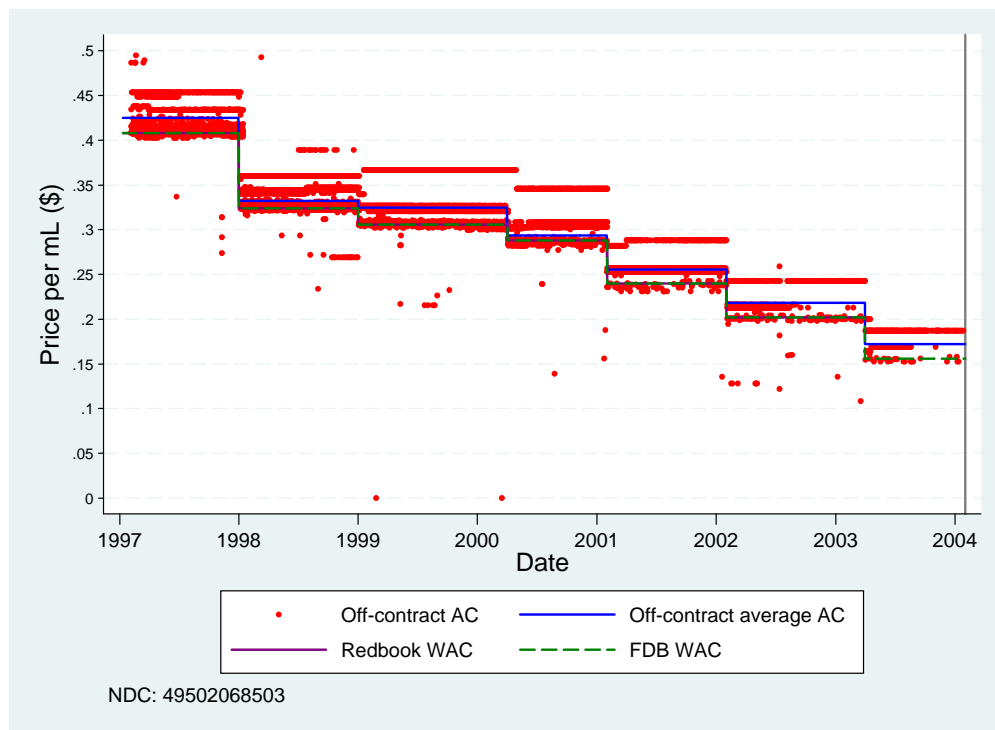
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**Figure 24: Lagged price graph for NDC 49502069703**



Source: Wholesaler, FDB, and Red Book data

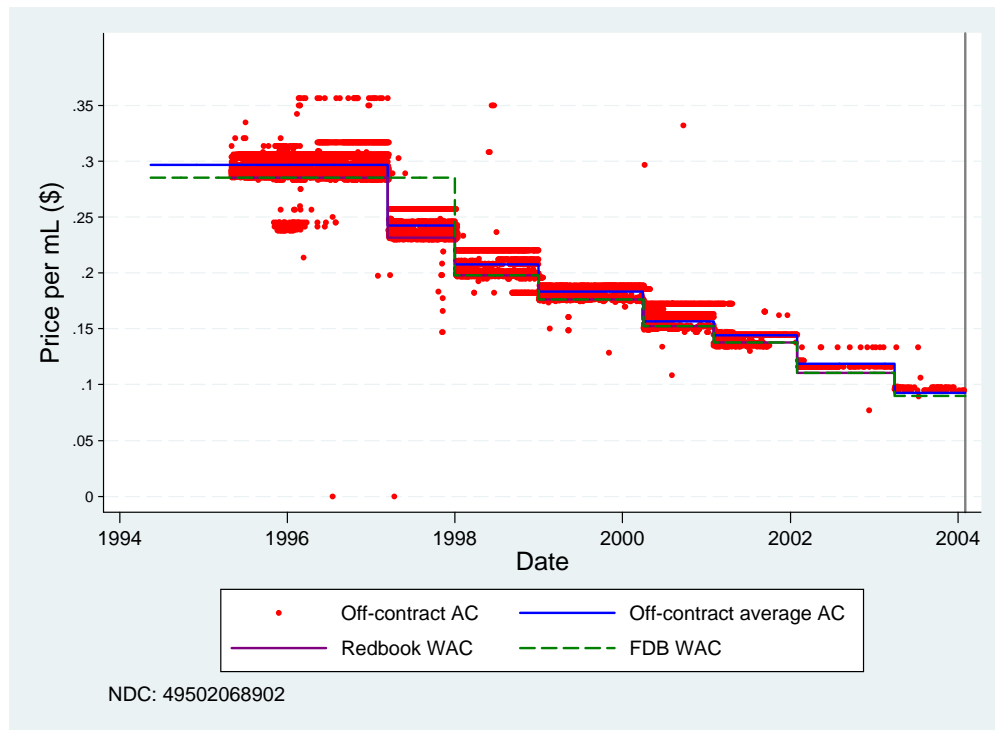
**Figure 25: Average and actual price graph for NDC 49502068503**



Source: Wholesaler, FDB, and Red Book data

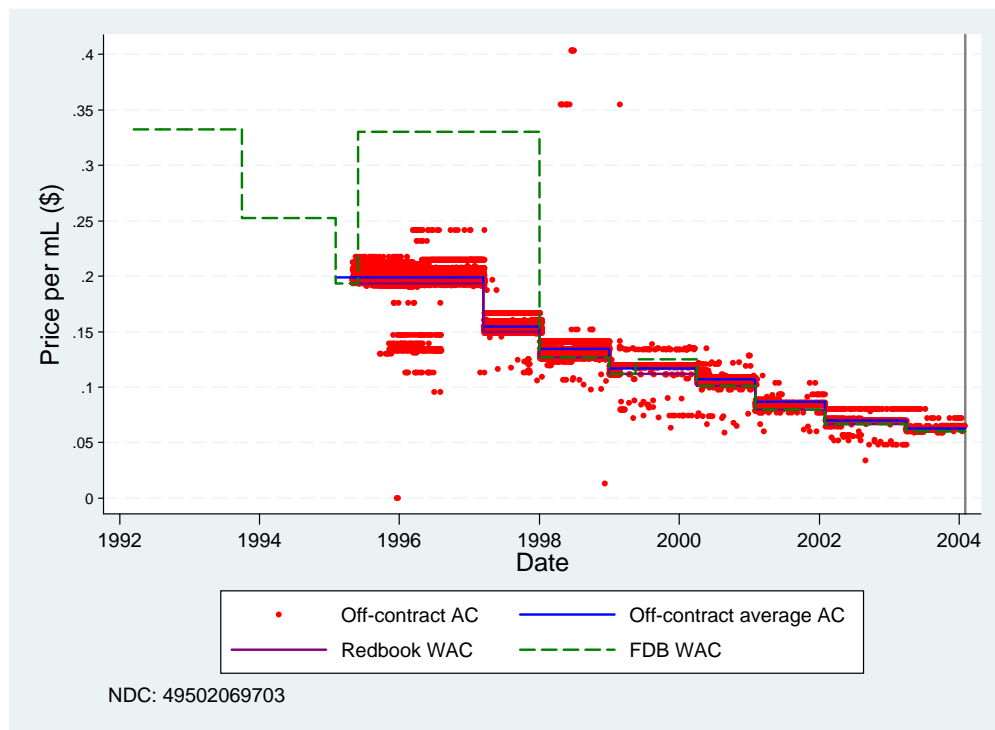
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**Figure 26: Average and actual price graph for NDC 49502068902**



Source: Wholesaler, FDB, and Red Book data

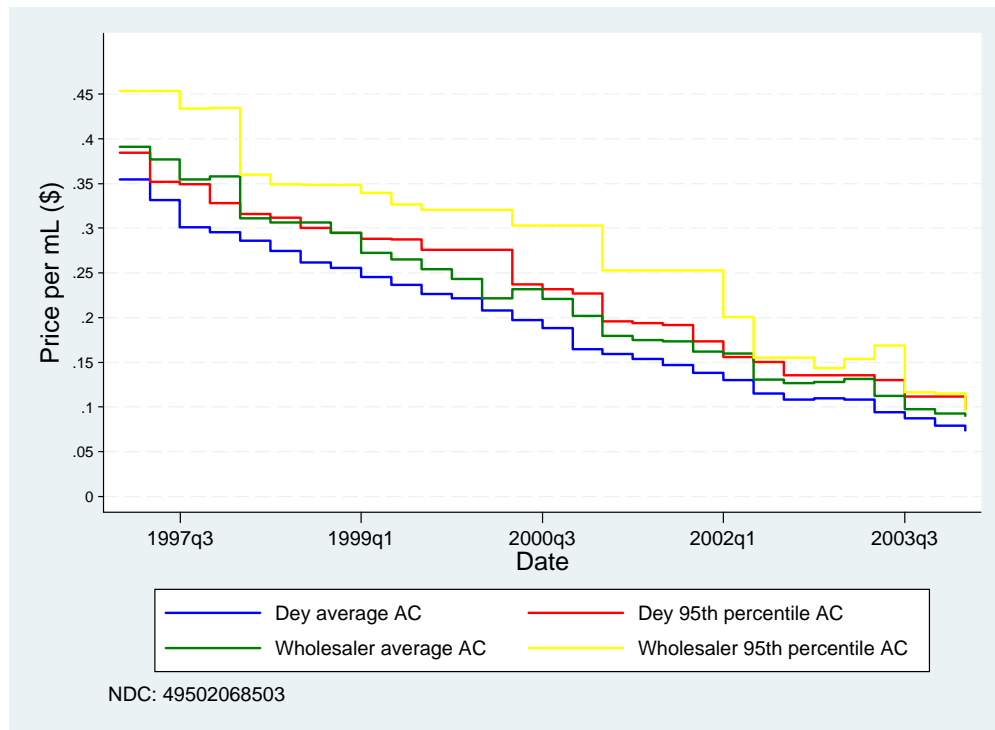
**Figure 27: Average and actual price graph for NDC 49502069703**



Source: Wholesaler, FDB, and Red Book data

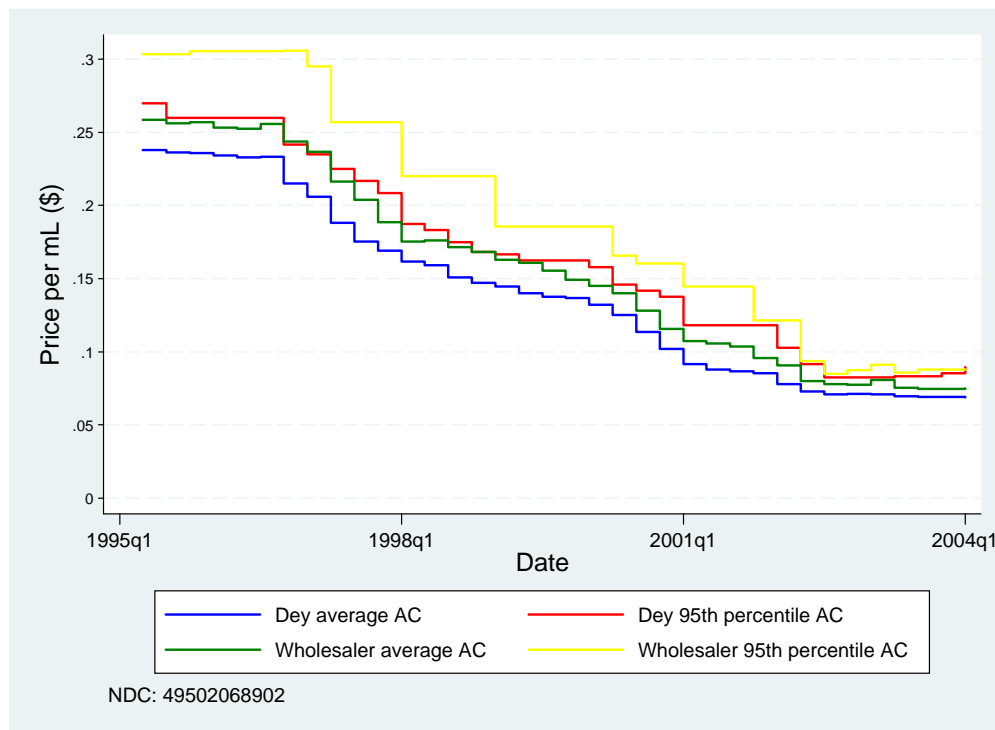
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**Figure 28: Pricing comparison for NDC 49502068503**



Source: Wholesaler, Dey chargeback data

**Figure 29: Pricing comparison for NDC 49502068902**

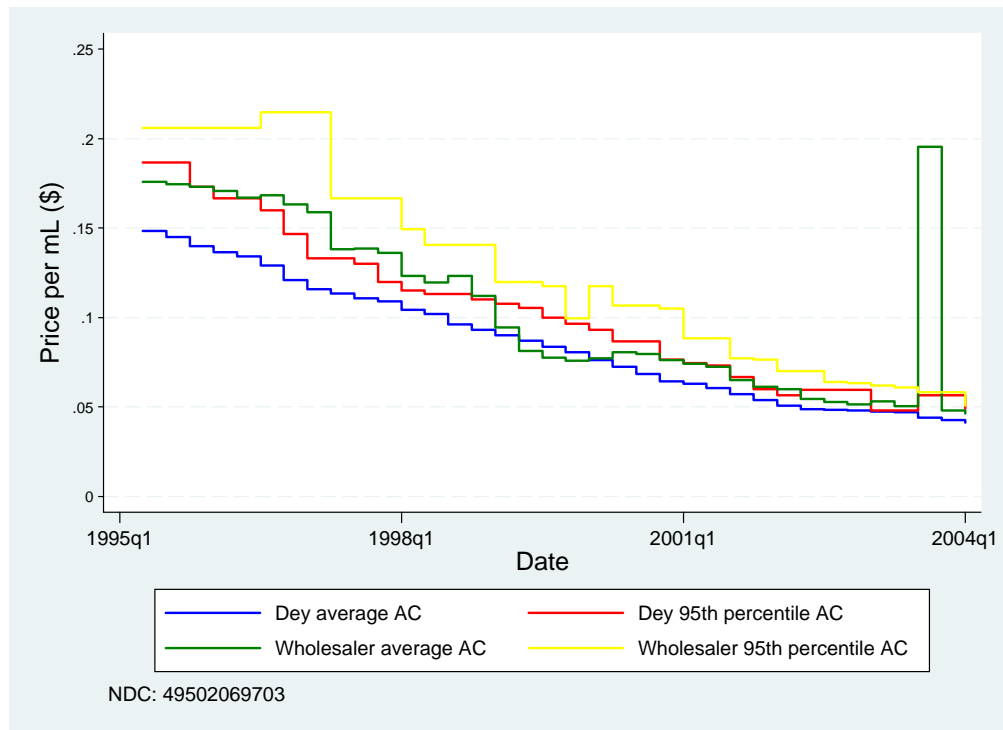


Source: Wholesaler, Dey chargeback data



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**Figure 30: Pricing comparison for NDC 59502069703**



Source: Wholesaler, Dey chargeback data

## Appendix E: Government information on pricing and OBRA 1990

3. In this appendix, I review the information available on drug pricing during, and even before, the period at issue. The first section discusses government information regarding AWP. The second section is a review of reports written by government authorities that illustrate they were not only knowledgeable of the wide differences between published and actual prices for drugs in general, but also for the subject drugs. Finally, I will focus on how the drug rebate program mandated by OBRA 1990 provided the government with actual pricing information for all manufacturers, including Dey, participating in Medicaid.

### E.1. Knowledge of AWP

4. It has been, and continues to be, standard industry knowledge that pharmacy acquisition costs are widely different from the published AWP prices. As early as 1984, the OIG audited pharmacy invoices across six states and reported that AWP exceeded acquisitions costs of pharmacies by more than 70% in some instances.<sup>2</sup> As a result of this audit, OIG stated, “The use of AWP in determining Medicaid reimbursement for drugs has been a problem that HCFA has recognized for some time.”<sup>3</sup>
5. As a result of this audit and industry knowledge that pharmacy acquisition costs were widely discounted from AWP, CMS encouraged the states to “discount AWP when making program reimbursements.”<sup>4</sup> In fact, CMS recommended that the state Medicaid agencies set reimbursement limits at a discount off AWP. Subsequently in 1988, CMS disapproved Louisiana’s state Medicaid reimbursement levels at AWP with no discounting.<sup>5</sup> In its disapproval letter to Louisiana State Amendment Plan, CMS stated that, “... a preponderance of evidence which demonstrates that the AWP overstates the price that providers actually pay for drug products. Thus use of an unmodified AWP cannot constitute an agency’s “best estimate” of current price.”<sup>6</sup>

<sup>2</sup> U.S. Department of Health and Human Services, Office of the Inspector General. “Changes to the Medicaid Prescription Drug Program Could Save Millions,” A-06-40216, September 1984, 4.

<sup>3</sup> U.S. Department of Health and Human Services, Office of the Inspector General. “Changes to the Medicaid Prescription Drug Program Could Save Millions,” September 1984, 3.

<sup>4</sup> U.S. Department of Health and Human Services, Office of the Inspector General. “Changes to the Medicaid Prescription Drug Program Could Save Millions,” September 1984, 3.

<sup>5</sup> U.S. Department of Health and Human Services, Health Care Financing Administration., “Reconsideration of Disapproval of a Louisiana State Plan Amendment,” 53 Fed. Reg. 29,381-01 (August 4, 1988).

<sup>6</sup> U.S. Department of Health and Human Services, Health Care Financing Administration. “Reconsideration of

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6. CMS also disapproved the state Medicaid plans of Alaska, Arkansas, and Oklahoma in 1988 for setting reimbursement levels without discounting off AWP.<sup>7</sup> Again, CMS's reasoning for disapproving these state Medicaid plans was that AWP did not accurately reflect the actual acquisition cost of pharmacies. In contrast to these disapprovals, in 1989 CMS commended Massachusetts' decision to set its Medicaid pharmacy reimbursement levels based on wholesale acquisition cost (WAC). In a 1989 letter CMS stated, "We want to take this opportunity to commend the Department of Public Welfare and the Rate Setting Commission for the recent adoption of wholesale acquisition costs (WAC) as the basis for computing EAC limits."<sup>8</sup>
7. The OIG followed up its 1984 audit with another audit in 1989 that confirmed its prior findings. Again, the OIG concluded "that there has been little change in the practice of discounting AWP since our prior audit".<sup>9</sup> This 1989 OIG report highlighted the implication of AWP-based reimbursement not only for Medicaid programs but also for the Medicare program, "Concerning the Medicare program, we recommend that alternate reimbursement methods be studied and that consideration be given to seeking legislative change to either use a different reimbursement method or to discount AWP."<sup>10</sup>
8. The impact of AWP-based reimbursement levels in the Medicare program was the subject of another OIG report. This 1995 report highlighted that various state Medicaid agencies were reimbursing at a much lower level than the Medicare program was reimbursing at the median AWP level at the time.<sup>11</sup> This study showed that there was wide variation in reimbursement levels across different state and federal fee-for-service programs. This variation by itself suggests that reimbursement programs based on AWP could have lowered the reimbursement levels by discounting off AWP. Recognizing that acquisition costs were much lower than AWP, most programs were discounting off AWP while some did not.
9. By the mid-1990s, it was not only widely known that average acquisition costs were much lower than AWP in general but also in particular for the inhalation drugs at issue in this matter. A 1996 OIG

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Disapproval of a Louisiana State Plan Amendment," 53 Fed. Reg. 29,381-01 (August 4, 1988).

<sup>7</sup> U.S. Department of Health and Human Services, Health Care Financing Administration. "Reconsideration of Disapproval of an Oklahoma State Plan Amendment", 53 Fed. Reg. 38,979-01 (October 4, 1988). Also see U.S. Department of Health and Human Services, Health Care Financing Administration "Reconsideration of Disapproval of an Arkansas State Plan Amendment," 53 Fed. Reg. 45,587-03 (November 10, 1988). Also see Deposition of David Campana, State of Alaska Medicaid pharmacy program manager, Aug. 19, 2008, at 254, 271.

<sup>8</sup> MA050769-85

<sup>9</sup> U.S. Department of Health and Human Services, Office of the Inspector General. "Use of Average Wholesale Prices in Reimbursing Pharmacies," September 29, 1989, 7.

<sup>10</sup> U.S. Department of Health and Human Services, Office of the Inspector General. "Use of Average Wholesale Prices in Reimbursing Pharmacies," September 29, 1989, 7.

<sup>11</sup> U.S. Department of Health and Human Services, Office of the Inspector General. "Medicare Payments for Nebulizer Drugs," February 1996, i, ii, iv, 6.

report surveyed the acquisition cost of pharmacy groups for albuterol sulfate and found that these prices were 56 to 70% lower than the Medicare reimbursement levels which were based on median AWP.<sup>12</sup> As a result this report recommended that, "HCFA should reexamine its Medicare drug reimbursement methodologies with the goal of reducing payment for prescription drugs."<sup>13</sup>

10. Similar OIG reports that highlighted the wide differences between AWP and actual acquisition price of specific inhalation drugs at issue in this matter were published at regular intervals. OIG reports on albuterol sulfate prices, which are shown in Figure 32 were published in 1996, 1998, 2000 and 2002.<sup>14</sup> Similarly, OIG reports that specifically looked at ipratropium bromide prices were published in 1998, 2002 and 2004; these reports are shown in Figure 33.<sup>15</sup> All of these reports continually recommended the revision of the AWP-based reimbursement system.
11. States could examine what other states were doing with regard to reimbursement. By definition there is only one AWP per drug dosage/quantity/manufacturer. Therefore, if a state observed another state reimbursing for less than they currently reimbursed, then that information could be used in rate setting. As noted in Section D.3, administrators for the Kentucky Medicaid program explicitly report undertaking this comparison. Significantly, beginning in 1995, the Massachusetts Medicaid Program established a "most-favored nation" based MAC (maximum allowable charge) system for reimbursement. This system revealed transactions prices in Massachusetts which were observable.

## E.2. Reports and studies by the federal government

12. Numerous government reports and studies have found that pharmaceutical published prices are not related to actual prices. The nature of the published drug prices was described in government reports as early as 1969:

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<sup>12</sup> U.S. Department of Health and Human Services, Office of the Inspector General. "Suppliers' Acquisition Costs for Albuterol Sulfate," June 1996.

<sup>13</sup> U.S. Department of Health and Human Services, Office of the Inspector General, "Suppliers' Acquisition Costs for Albuterol Sulfate," June 1996, ii.

<sup>14</sup> U.S. Department of Health and Human Services, Office of the Inspector General. "A Comparison of Albuterol Sulfate Prices," June 1996. Also see U.S. Department of Health and Human Services, Office of the Inspector General. "Suppliers' Acquisition Costs for Albuterol Sulfate," June 1996; U.S. Department of Health and Human Services, Office of the Inspector General., "Are Medicare Allowances for Albuterol Sulfate Reasonable?" August 1998; U.S. Department of Health and Human Services, Office of the Inspector General. "Medicare Reimbursement of Albuterol," June 2000; and U.S. Department of Health and Human Services, Office of the Inspector General "Excessive Medicare Reimbursement for Albuterol," March 2002.

<sup>15</sup> U.S. Department of Health and Human Services, Office of the Inspector General "Comparing Drug Reimbursement: Medicare and Department of Veterans Affairs," November 1998. Also see Department of Health and Human Services, Office of the Inspector General. "Excessive Medicare Reimbursement for Ipratropium Bromide," March 2002 and U.S. Department of Health and Human Services, Office of the Inspector General. "Update: Excessive Medicare Reimbursement for Ipratropium Bromide," January 2004.

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Ostensibly, wholesale prices are listed in company catalogs and price lists, but these generally represent maximum prices. They serve merely as an umbrella beneath which actual prices are set by quantity discounts, hospital discounts, government discounts, two-for-the-price-of-one deals, rebates, and other special arrangements.

...

These listed prices rarely have any realistic relationship with actual acquisition costs.<sup>16</sup>

13. This description of the published drug prices is consistent with my discussion of list prices in Section C.

### E.2.1. Actual transaction price knowledge in general

14. Many government agencies, including the OIG within HHS and the GAO, have studied drug prices for decades. In general, they have found wide variation between the published list prices and actual acquisition costs. They have also detailed the nuances between different groups of drug products, different types of pharmacy providers, and access to different types of pricing. Figure 31 lists some of these studies and their key findings. The quantity and detail of these studies confirms the wide knowledge of the differences between the published prices and the actual prices.

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<sup>16</sup> U.S. Department of Health, Education, and Welfare, "Prescription Drugs Under Medicare," February 7, 1969, 148.

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**Figure 31: Government reports on pharmaceutical pricing**

Year	Government document	Key findings	Quantitative key findings
1969	"Department of Health, Education, and Welfare: Task Force on Prescription Drugs—Final Report"	"Ostensibly, wholesale prices are listed in company catalogs and price lists, but these generally represent maximum prices. They serve merely as an umbrella beneath which actual prices are set by quantity discounts, hospital discounts, government discounts, two-for-the-price-of-one deals, rebates, and other special arrangements. ... These listed prices rarely have any realistic relationship with actual acquisition costs."	Not applicable
1974	Federal Register	"Red Book data, Blue Book data...such standard prices...are frequently in excess of actual acquisition costs."	Not applicable
1975	Federal Register	"As stated in the preamble to the proposed regulations, AWP data are frequently inflated."	Not applicable
1977	Title XIX Social Security Act: Limitation on Payment Reimbursement for Drugs: Estimated Acquisition Cost (EAC)	The Department is not convinced that those States which continue to reimburse at average wholesale price (AWP), or wholesale invoice cost, have made a real effort to approach AAC [actual acquisition cost].	Not applicable
1984	"Office of Inspector General: Changes to the Medicaid Prescription Drug Program Could Save Millions"	"Pharmacies purchase drugs at prices that are discounted significantly below AWP or list price... The use of AWP in determining Medicaid reimbursement for drugs has been a problem that HCFA has recognized for some time... HCFA believed that published AWP was too high and, therefore, the purpose of the EAC [Estimated Acquisition Cost] requirement in the regulations was to move states away from using AWP as the upper limit for reimbursing drug ingredient cost." ... "Thus, AWP cannot be the best—or even an adequate—estimate of the prices providers generally are paying for drugs."	99.6% of the purchases were made at prices averaging 15.93% below AWP. These purchases ranged from as little as 0.23% below AWP to as much as 41.78% below AWP.
1989	"Office of Inspector General: Use of Average Wholesale Prices in Reimbursing Pharmacies Participating in Medicaid and the Medicare Prescription Drug Program"	"We continue to believe that AWP is not a meaningful payment level and that it should not be used for making reimbursements in either the Medicaid or the new Medicare drug program."	For multiple-source drugs, our sample of 1,403 prices showed a weighted average price below AWP minus 18.2%.
1991	"Health Care Financing Administration: Medicare Program: Fee Schedule for Physicians' Services"	"We received a great many comments on this issue, primarily from oncologists indicating that our 85 percent standard was inappropriate. The thrust of most of the comments was that many drugs could be purchased for considerably less than 85 percent of AWP—particularly multi-source drugs—while others were not discounted."	Not applicable
1992	"Office of Inspector General: Physicians' Costs for Chemotherapy Drugs"	"...Red Book officials confirmed that the AWP is not designed to reflect physicians' costs."	Invoice costs ranged from AWP-9% to AWP-83%
1994	"Jo Ann Lamphere-Thorpe, M.S. et al.: Who Cares What it Costs to Dispense a Medicaid Prescription?"	"There is some evidence and widespread belief that pharmacists' actual purchase costs differ markedly from published average wholesale prices."	Mean dispensing cost (not weighted by Medicaid prescription quantity) was \$5.19
1996	Letter from Ven-A-Care to Bruce Vladeck, Administrator of the HCFA	"Enclosed with this letter you will find two volumes of exhibits that substantiate and support the fact that Medicare and Medicaid programs are continuing to make excessive reimbursements to providers for infusion and inhalation pharmaceuticals."	We found that Medicare's reimbursement was excessive and in many cases provided profit margins of more than 500% and, in some instances, more than 1000%.
1997	"Office of Inspector General: Review of Pharmacy Acquisition Costs for Drugs Reimbursed Under the Medicaid Prescription Drug Program of the Maryland Department of Health and Mental Hygiene"	"We have determined that there is a significant difference between AWP and pharmacy acquisition costs. The difference between AWP and pharmacy acquisition costs is significantly greater for generic drugs than for brand name drugs."	In MD invoice prices were discounted 18.7% below AWP for brand name drugs and 41.9% below AWP for generic drugs. The national estimates were 18.3% and 42.5%, respectively.

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Year	Government document	Key findings	Quantitative key findings
1997	"Office of Inspector General: Medicaid Pharmacy -Actual Acquisition Cost of Prescription Drugs Products for Brand Name Drugs"	"We have also calculated that changing reimbursement policy consistent with the findings of our report could have resulted in savings of as much as \$225 million for the 100 most reimbursed drugs in CY 1994. We recognize that these calculations do not incorporate all the complexities of pharmacy reimbursement and that acquisition cost is just one factor in pharmacy reimbursement policy."	Estimated that the national average AAC was AWP-18.3%
1997	"Office of Inspector General: Medicaid Pharmacy –Actual Acquisition Cost of Prescription Drugs Products for Generic Prescription Drug Products"	"The findings shown in the report confirm the belief shared by many states that the pharmacy's actual generic drug acquisition costs are much less than the prices paid by many states to the pharmacies."	Acquisition costs are 42.5% below AWP for generic drugs.
1997	"Office of Inspector General: Excessive Medicare Payments for Prescription Drugs"	"In this report we've identified Medicare allowances that were 11 to 900 percent greater than drug prices available to the physician and supplier communities." ... "The published AWP's that are currently being used by Medicare-contracted carriers to determine reimbursement bear little or no resemblance to actual wholesale prices that are available to the physicians and suppliers that bill for these drugs." "For every one of the 22 drugs reviewed, Medicare allowed amounts were more than the actual average wholesale price in both 1995 and 1996. Not only did Medicare pay more than the actual average wholesale price, the program allowed more than the highest average wholesale price for every drug."	"For HCPCS code J7620 the Average Medicare allowed amount was \$0.42 in 1995. The lowest wholesale price found was \$0.15 and the highest was \$0.21. In 1996, the average Medicare allowed amount was \$0.41. The lowest wholesale price found was \$0.16 and the highest was \$0.25. For J7620, estimated Medicare savings if acquisition costs were used for 1995 prescription drug reimbursement would have been \$106,352,439 (or 64%) of the \$166,901,971 in 1995 allowances. For J7620, estimated Medicare savings if acquisition costs were used for 1996 prescription drug reimbursement would have been \$92,199,355 (or 53%) of the \$175,399,846 in 1995 allowances."
2001	Congressional testimony of Thomas A. Scully, CMS Administrator	"Numerous studies have indicated that the industry's reported wholesale prices...are vastly higher than the amounts that drug manufacturers and wholesalers actually charge providers. ... This Committee, CMS, the Department's Office of the Inspector General (OIG), and others have long recognized the shortcomings of AWP as a way for Medicare to reimburse for drugs."	Not applicable
2002	"Office of Inspector General: Medicaid Pharmacy – Actual Acquisition Cost of Generic Prescription Drugs Products"	"We previously noted the shortcomings of using AWP as a basis for reimbursement and will strongly encourage states to reevaluate their reimbursement methodology for drugs. In addition, we will continue to encourage states to look for an alternate basis for reimbursement."	In 1999, average actual acquisition costs are 65.9% below AWP for generic drugs.
2002	"Office of Inspector General: Medicaid Pharmacy – Additional Analyses of the Actual Acquisition Cost of Prescription Drug Products"	"Analyses show that there is a wide range of discounts from AWP for pharmacy purchases depending on the category of drug that is being purchased...The current method of reimbursing for brand name drugs and those non-FUL multiple source drugs using a single percentage discount does not adequately consider the large fluctuations in actual discounts between brands and multiple source drugs..."	"For multiple source drugs without FULs: pharmacies purchased the drugs at an estimated discount of 44.2 percent below AWP. A further breakdown of multiple source drugs without FULs showed the estimated discount for innovator multiple source drugs to be 24.4 percent and 54.2 percent for non-innovator multiple source drugs. For multiple source drugs with FULs: pharmacies purchased the drugs at an estimated discount of 72.1 percent below AWP."



## E.2.2. Actual transaction price information on subject drugs

15. The reports and studies listed in Figure 31 show the difference between published and actual drug prices in general. Additionally, government agencies have also studied the prices for subject inhalation drugs. As I will discuss in section [xx], these inhalation therapy drugs accounted for a significant portion of the expenditures on drugs provided through Medicare part B program. This led government agencies to study the price of these drugs starting in the mid-1990s. Figure 32 and Figure 33 list these studies and specific finding for the subject drugs. In some instances these studies estimated the prices for specific NDCs at issue in this matter. All of these studies showed that actual and published prices differed widely for these drugs.

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**Figure 32: Reports and studies on albuterol drug prices**

Year	Government report featuring albuterol	Key findings	Quantitative key findings
Feb 1996	Office of the Inspector General: Medicare Payments for Nebulizer Drugs	Medicaid reimbursed albuterol sulfate and other nebulizer drugs at significantly lower prices than Medicare. OIG recommended that the HCFA reexamine its Medicare drug reimbursement methodologies with the goal of reducing payments as appropriate. The HCFA concurred with the OIG's recommendation and is currently examining available options in an effort to make appropriate drug payment reductions.	If Medicare had revised its drug pricing methodology and implemented a manufacturers' rebate program, it and its beneficiaries could have saved about \$58 million of the \$226 million allowed for nebulizer drugs (excluding administrative costs) in 1994. From January 1, 1994 through February 28, 1995, Medicare and its beneficiaries paid about \$37 million more for 3 nebulizer drugs in 17 states than the amount Medicaid would have paid for equivalent drugs. \$34,135,607 were alleged "overpayments" for albuterol sulfate.
June 1996	Office of the Inspector General: A Comparison of Albuterol Sulfate Prices	OIG recommended that the HCFA should reexamine its Medicare drug reimbursement methodologies with the goal of reducing payments for prescription drugs, as they recommended in their earlier report. the HCFA concurred with OIG's recommendation to reexamine Medicare's drug reimbursement methodologies with a goal of reducing payments.	The pricing for albuterol sulfate, during the OIG's survey in April 1995, was \$0.43 per milliliter in three DMERCs and \$0.40 in one DMERC. All five pharmaceutical buying groups surveyed were paying less. Their payments ranged from \$ .13-.19 per milliliter.
June 1996	Office of the Inspector General: Suppliers' Acquisition Costs for Albuterol Sulfate	"Medicare's allowances for albuterol sulfate substantially exceed suppliers' acquisition cost for the drug" and the OIG recommends that the HCFA reexamine its Medicare drug reimbursement methodology. "If the HCFA had based its reimbursement for albuterol sulfate on the average of supplier invoice costs, as illustrated in this report, the Medicare program could have saved \$94 million during the 14-month period of our review."	Suppliers are paying an average cost of \$.19 per ml for albuterol sulfate. Specifically, when purchased from a drug manufacturer, the average supplier cost per ml was \$.14, when purchasing from wholesalers it was \$.20, and when purchasing from pharmacies it was \$.23. Most albuterol billed to the Medicare program was the generic form of the drug (90%).
1998	Office of the Inspector General: Are Medicare Allowances for Albuterol Sulfate Reasonable?	"The findings of this report continue to provide evidence that Medicare and its beneficiaries are making excessive payments for albuterol sulfate." While the HCFA concurred with the intent of the OIG's recommendations that the HCFA reexamine its Medicare drug reimbursement methodologies, with the goal of reducing payments, the HCFA wanted to give Congress the opportunity to act on the Administration's legislative proposal to reduce drug payment before considering the use of its inherent reasonableness authorities.	Medicare allowed up to 333% more than acquisition cost for albuterol sulfate in 1998. Current information continues to prove that Medicare and its beneficiaries pay too much for albuterol sulfate. Medicare paid 56% to 550% more than the Department of Veterans Affairs for generic versions of albuterol in 1998. Medicare allowed 20% more than the average Medicaid payment for albuterol sulfate in 1997.
2000	Office of the Inspector General: Medicare Reimbursement of Albuterol	"Anyone with a prescription can walk into a retail chain pharmacy or visit an Internet pharmacy and pay a price for albuterol which is usually below the Medicare reimbursement amount." This report found that Medicare would save between \$47 million and \$209 million annually by lowering its reimbursement amount to prices available to other sources.	The Medicare price per mg was \$.47. The VA median cost was \$0.07, the Medicaid upper limit was \$.24, the chain pharmacy median price was \$.38 and the internet pharmacy median price was \$.25.
2002	Office of the Inspector General: Excessive Medicare Reimbursement for Albuterol	Medicare would save \$264 million per year if albuterol were reimbursed at the median price paid by the VA. Medicare would save between \$226 million and \$245 million a year if albuterol were reimbursed at prices available to suppliers. Invoices reviewed by the OIG listed prices ranging from \$0.08 to \$0.14 per mg for albuterol purchased by suppliers between 1998 and 2000. The median price for albuterol purchased by these suppliers was \$0.09 per mg, 81% less than the Medicare reimbursement amount.	Catalog prices for generic albuterol ranged from a low of \$0.07 per mg to a high of \$0.15 per mg. The Medicare reimbursement amount (\$0.47 per mg) was nearly six times more than the median catalog price (\$.08 per mg). In earlier reports, we found that the average catalog price for albuterol was \$0.23 per mg in 1996, and \$0.13 per mg in 2000. The current catalog price of \$0.08 per mg of albuterol is 65% less than the catalog price of the drug five years earlier.

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**Figure 33: Reports and studies on ipratropium bromide drug prices**

Year	Government report featuring ipratropium bromide	Key findings	Quantitative key findings
1998	Office of the Inspector General: Comparing Drug Reimbursement: Medicare and Department of Veterans Affairs	"This report provides additional evidence that the published AWP's used in determining the Medicare allowed amounts for certain prescription drugs can be many times greater than the actual acquisition costs available in the marketplace."	"The median VA price for K0504 was \$0.06, the HCFA median was \$0.13, the percentage difference was 117%, the estimated savings if the HCFA had used the VA price would have been \$1,083,208. The median VA price for K0505 was \$0.12, the HCFA median was \$0.47, the percentage difference was 292%, the estimated savings if the HCFA had used the VA price would have been \$120,269,511. The median VA price for K0518 was \$1.31, the HCFA median was \$3.34, the percentage difference was 155%, the estimated savings if the HCFA had used the VA price would have been \$59,897,039."
2002	Office of the Inspector General: Excessive Medicare Reimbursement for Ipratropium Bromide	"Despite numerous attempts by CMS to lower reimbursement amounts for prescription drugs, the findings of this report illustrate that Medicare pays too much for ipratropium bromide. We have consistently found that the published average wholesale prices currently used by Medicare to establish reimbursement amounts bear little or no resemblance to actual wholesale prices that are available to suppliers and large government purchasers."	Medicare and its beneficiaries would save \$279 million a year if ipratropium bromide were reimbursed at the median price paid by the VA. Medicare and its beneficiaries would save between \$223 million and \$262 million a year if ipratropium bromide were reimbursed at prices available to suppliers.
2004	Office of the Inspector General: Update: Excessive Medicare Reimbursement for Ipratropium Bromide	Medicare continues to pay more for ipratropium bromide than other payors. If Medicare could reimburse for ipratropium bromide at the Medicaid Federal Upper Limit Amount, Medicare and its beneficiaries would have saved \$386 million in 2002.	In spring 2003, the median price of ipratropium bromide for the wholesaler/distributor was \$0.57 per mg. Medicare's reimbursement amount of \$3.34 per mg was over five times more for the same amount of the drug. "Since our 2002 report, which was based on 2001 data, the price at which ipratropium bromide was available to the supplier community had decreased, while the Medicare reimbursement amount had remained the same."

### E.3. Drug price knowledge as part of OBRA 1990

16. The Omnibus Budget Reconciliation Act of 1990 (OBRA 1990) provided direct knowledge of the actual prices. OBRA 1990 included four major pharmaceutical drug-related cost-containment policies: drug rebates, formularies, pharmacy reimbursement rates and drug utilization review. The drug rebate policy was meant to ensure that Medicaid drug programs received the “best” price offered to any other non-Medicaid entity in the US for covered outpatient drugs. Therefore, effective January 1, 1991, the law made federal matching funds to each state contingent on rebates from manufacturers for outpatient drugs.<sup>17</sup>
17. For generic drugs, like the subject drugs in this matter, rebates are based exclusively on the AMP. The AMP is calculated from transactions to the retail class of trade. For generic drugs, the rebate was 10% off of the AMP from January 1, 1991 until all quarters beginning on or after December 31, 1993 when the rebate increased to 11% of AMP.<sup>18</sup>
18. Every manufacturer was required to submit AMP for each drug to the CMS on a quarterly basis. Thus the federal government has had direct knowledge of the actual prices since 1990. Figure 40 in the main report shows the AMP provided by Dey to CMS for the ipratropium bromide 0.02% solution. As the figure shows, AMP is lower than the undiscounted list price WAC. Figure 40 in the main report also shows that the alternate AAC calculated by Dr. Duggan is comparable to the AMP that Dey was already providing to the federal government.
19. While the OBRA provisions made major changes to the way Medicaid programs purchased prescription drugs, these changes were made without negative effects on pharmacists. When OBRA was instituted there was no reduction of dispensing fees for pharmacies and, “due to pressure from pharmacy lobby groups, OBRA 1990 included a four-year moratorium on reductions in Medicaid payments to pharmacists.”<sup>19</sup>

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<sup>17</sup> Omnibus Budget Reconciliation Act of 1990, Pub. L. No. 101-508, § 4401, 104 Stat. 143 (1990)

<sup>18</sup> Pollard, Michael R. and John M. Coster. “Update.” Health Affairs, Summer 1991, 197–98.

<sup>19</sup> Moore, Willaim J. and Etienne E. Pracht. “Changes in Effectiveness of State Medicaid Drug Program Cost-Containment Policies Following OBRA 1990.” American Journal of Economics and Sociology 66, no. 5 (2007): 907.

### E.3.1. Federal knowledge as part of OBRA

20. AMP data provided CMS officials with knowledge of the relationship between actual transaction prices and AWP, according to Thomas Scully, the CMS Administrator from 2001 to 2004. “Q. Well, you had AMP, for example, right? A. Yep. Q. And you knew that that was way below as a general proposition anybody's AWP, correct? A: Yes. Way below AWP.”<sup>20</sup> Additionally, CMS was able to do this comparison for any particular drug to analyze the difference between these values. Scully describes this ability:

Q. So you would agree with me that at all times, during the entire time that Dey's Albuterol or Ipratropium was being reimbursed by Medicaid, people in the Medicaid agency could look and determine and calculate precisely the spread between AWP and AMP for those drugs?

A. I am not sure what kind of access the state agencies had but -- Q. I'm not asking -- A. -- CMS, centrally, yes, could have, yes, CMS, centrally -- CMS had that -- had that data, yes.<sup>21</sup>

21. Scully further elaborates on this point:

Q. And during the time that you were running the CMS agency people within Medicaid, at the agency, could sit down and take a drug, let's say Albuterol, and chart out on a spreadsheet every price that the federal government was paying for Albuterol; right?

A. Yes.

Q. And you could include in that chart you could have an AWP charge; right?

A. Yes.

Q. You could do any of the AWP minus calculations that the states were doing; right?

A. Yes.

Q. You could put in there the AMP reported by the Albuterol manufacturer; right?

A. Internally, for our own discussions, yes...<sup>22</sup>

22. While CMS could have compared different prices for any given drug product, it chose not to use AMP data for that purpose. Diedre Duzor, a Director of the Pharmacy Division for Medicaid at CMS,

<sup>20</sup> Deposition of Thomas Scully, CMS Administrator, 2001–2004, May 15, 2007, at 335.

<sup>21</sup> Deposition of Thomas Scully, CMS Administrator, 2001–2004, July 13, 2007, at 618–19.

<sup>22</sup> Deposition of Thomas Scully, CMS Administrator, 2001–2004, July 13, 2007, at 671–72.

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states that AMP, “was used for the rebate program solely and we did not use it for any other purpose.”<sup>23</sup>

23. CMS is responsible both for approving the methodology of each state’s Medicaid plan and for providing guidance to the states. Scully did try to impart this knowledge of AMP to the states, though, in his opinion, they continued to overpay for drugs:

Q. Did you ever ask anyone at CMS staff to call the states and tell them that they should not pay the spread between AWP and AMP?

A. I talked to many state Medicaid directors and governors about this issue, generically. I spoke at many state Medicaid conferences, and complained about how this worked.<sup>24</sup>

### E.3.2. States potential knowledge through rebates

24. CMS communicates a unit rebate amount (URA) to each state after the manufacturers submit AMP. Each state then multiplies this value by quantity in order to bill the manufacturers for the rebates. Larry Reed, the Branch Chief of Medicaid Non-Institutional Payment Policy at CMS as of 1991, described why the AMPs were not shared with the states, and how the states were to use this information.

The information was not disclosed to the states because to operate the rebate part of the program, to invoice the manufacturers, they needed one number, which was called the unit rebate amount, and that could be matched with units and be used as an invoice to basically know or have a rough idea of what their rebates would be from a manufacturer.<sup>25</sup>

25. Although the states were not given access to the actual AMPs, any state could have calculated the AMP based on the amount of rebates they received. According to Bruce Vladeck, the CMS Administrator from 1993-1997, this would have been a straightforward calculation.

Q. To the extent that generic drugs, for example, had a rebate as a calculated percentage of the AMP, would you agree with me that it was simply a matter of mathematics to go from the unit rebate amount back to the AMP?

A. To the extent that the information was accurately reported and the rebate was a flat percentage amount, than [sic] one ought to be able to make that calculation, yes.<sup>26</sup>

<sup>23</sup> Deposition of Dierdre Duzor, Director of the Pharmacy Division for Medicaid at CMS, Oct. 30, 2007, at 369.

<sup>24</sup> Deposition of Thomas Scully, CMS Administrator, 2001–2004, July 13, 2007, at 632–33.

<sup>25</sup> Deposition of Larry Reed, CMS Branch Chief of Medicaid Non-Institutional Payment Policy, Sept. 27, 2007, at 354–55.

<sup>26</sup> Deposition of Bruce Vladeck, CMS Administrator 1993-1997, May 5, 2007, pp. 248–49.

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26. Individual states were aware of the ability to make these calculations, and in some cases went ahead and determined the AMP for particular drugs. Paul Jeffrey, Director of Pharmacy for Massachusetts Medicaid, MassHealth, answered questions about the issue:

Q. And what I'm trying to determine is whether you have an understanding of how you might use that rebate information from CMS to determine, at least approximately, the amount of the average manufacturer's price submitted by the manufacturer to CMS?

A. Yes. Yes, we could have done that, yes.

Q. How could you have done it?

A. Well, to the -- well, we could have, you know, backed into the formula, so, you know, start at this point and work backward.

Q. That's right, by taking the rate?

A. The rebate amount, the rebate rate, and backing into what the AMP would have been to get us to that, yes.

...

Q. And did MassHealth do that from time to time?

A. I recall at least one effort made to do that.<sup>27</sup>

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<sup>27</sup> Deposition of Dr. Paul Jeffrey, Director of Pharmacy at MassHealth, June 14, 2007, pp. 114–15.



## Appendix F: Medicaid payment basis charts

### F.1. Payment basis and claims data

27. In this section I describe the analysis, used to identify the basis of payment for each Medicaid claim. I will also summarize the results of this analysis and give a brief review of the state Medicaid claims data processing.

#### F.1.1. Claims data preparation

28. In order to perform a payment basis analysis I first clean the claims data for each state. The steps involved in this process are unique to each state; however, many of the steps are common across states.
29. I exclude negative claims that are generally adjustments to positive claim records. When I identify a dataset with these adjustments, I attempt to match them to their original claim counterpart using some form of claim ID provided in the data. The result of this process is that certain claims are canceled out and dropped from further analysis. After these adjustments, any remaining negative claims are excluded.
30. I also perform a series of additional exclusions, which are commensurate to those preformed by plaintiff expert Dr. Duggan. These exclusions include any claims with a negative or missing paid amount, quantity, or billed amount. Claims with an amount billed less than the amount paid are also removed. Furthermore, I drop all claims that occur within a quarter for which there is incomplete data, and all claims with a non-zero third party payer amount. Finally, I do not consider claims when the paid amount is less than the dispensing fee or claims that are identified within the data as having been compounded.

#### F.1.2. Payment basis

31. The payment basis analysis is performed on a claim-by-claim basis using the data for each state created through the initial processing steps described above. I first calculate a unit ingredient reimbursement and a unit ingredient billed amount for each claim in the data set. This is generally done using the following formula:

$$\text{Unit ingredient reimbursement} = (\text{paid amount} + \text{copayment} - \text{dispensing fee}) / \text{quantity}$$

32. If the copayment or dispensing fee fields are not provided in the claims data I generally create these fields using information obtained through research. I have reviewed the research compiled by Myers and Stauffer for use in Dr. Duggan's analysis and generally feel that this information is accurate. Therefore, I use the Myers and Stauffer data in my analyses.
33. I then bring in the price fields necessary for this analysis. I use the published AWP, WAC and FUL prices from the FDB data. Furthermore, I consider the DOJ-revised AWP made available in 2000, as well as any state MAC prices provided to me or that I was able to obtain through publically available sources. I also create prices that reflect up to a 90 day lag in the state's implementation of either a change in price or policy.
34. To identify the basis of payment for each claim that most closely resembles the actual reimbursement, I calculate the difference between the unit ingredient reimbursement and each pricing basis available, including the unit ingredient billed, as a percentage of the unit ingredient reimbursement. I then determine which pricing basis differs the least from the actual unit ingredient reimbursement and assign each claim a basis accordingly. I allow a 0.25% margin for error when assigning these matches. Therefore, if the most closely matching price still differs by more than 0.25% of the claim's ingredient cost I determine the match to be invalid and assign the claim a basis of "other", the "other" category represents claims whose price basis for reimbursements is unknown.
35. Some states did not provide state MAC data, although research indicates that a state MAC program did exist for some portion of the time period at-issue. In order to take this fact into account and maintain a conservative analysis for the states where this is an issue, I calculate further payment basis matches using a process which approximates a potential MAC price.
36. This extension to the payment basis analysis begins with the results of the original payment basis analysis and only considers claims which did not receive a basis during the initial analysis. As such, a basis of payment identified in the initial analysis cannot be overridden by this further analysis. For each NDC and quarter I determine the two prices which occur most often among the previously unmatched claims during quarters in which research indicates a state MAC program existed for that state. These modes must meet the following criteria to continue in the analysis:
  1. The most frequently occurring mode is dropped if the percentage of claims represented by the two modes is not at least 40%.

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2. The most frequently occurring mode is dropped if the percentage of claims represented by the second mode is less than 10% and the percentage of claims represented by the first mode is less than 40%.
  3. The second most frequently occurring mode is dropped if the percentage of claims represented this mode is less than 10%.
  4. The second most frequently occurring mode is dropped if the percentage of claims represented by both modes is less than 40% or the percent of claims represented by the first mode is greater than 40%.
  5. The number of claims represented by either mode is less than 10.
  6. The mode did not exist for more than one quarter.
37. I then use these two price bases to perform an additional matching process similar to the one described above and using the same 0.25% threshold. Again, only claims with a basis result of “other” are considered. Claims identified through this process are given a basis of “MAC observed.”

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### F.1.3. Results

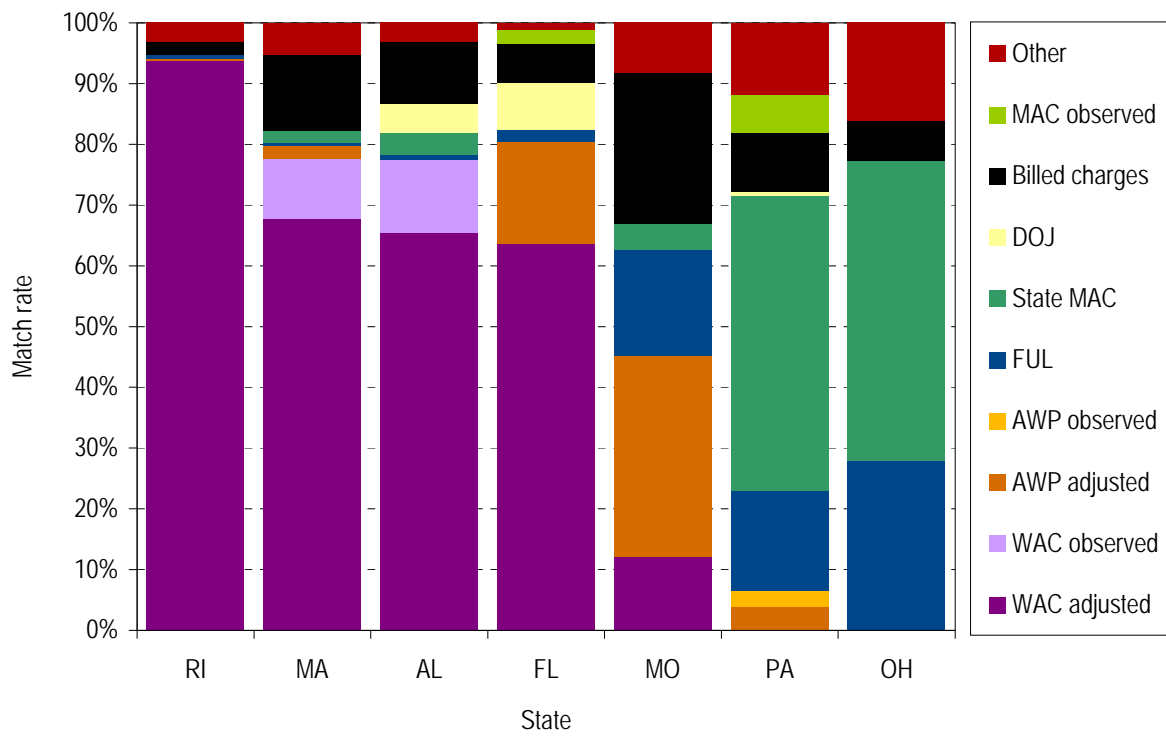
**Figure 34: Payment basis results for all states with claims data**

State	Total claims	Total paid	Start quarter	End quarter	Basis of payment Ingredient cost percent										
					AWP adjusted	WAC adjusted	FUL	State MAC	DOJ-revised AWP	AWP observed	Delaware WAC	MAC observed	WAC observed	Billed charges	Other
Alabama	329,283	\$10,675,514	1993 Q1	2005 Q1		65.5%	0.9%	3.6%	4.9%				11.9%	10.1%	3.1%
Alaska	43,827	\$1,805,350	1996 Q1	2006 Q4	27.2%		11.9%		11.4%					34.8%	14.7%
Arkansas	89,186	\$2,931,139	2000 Q1	2008 Q1	2.0%		17.3%	52.9%						11.6%	16.2%
California	1,043,898	\$52,565,561	1994 Q2	2007 Q3	42.8%		21.2%			34.6%				0.9%	0.5%
Connecticut	138,423	\$6,185,819	1994 Q4	2004 Q2	68.7%		11.8%		7.1%					9.0%	3.4%
Delaware	34,798	\$545,728	2003 Q1	2008 Q1	0.1%		18.4%	3.6%			73.8%			1.0%	3.1%
Florida	957,163	\$36,724,156	1993 Q4	2005 Q4	16.8%	63.6%	2.0%		7.8%			2.4%		6.2%	1.0%
Georgia	337,960	\$10,789,385	2000 Q4	2006 Q4	1.1%		22.6%	65.2%	0.0%					6.9%	4.2%
Hawaii	45,630	\$2,116,769	1993 Q1	2006 Q1	16.8%		11.4%	0.6%	5.2%	3.7%				14.4%	47.9%
Idaho	72,614	\$2,941,421	1993 Q1	2005 Q4	40.7%		9.3%	12.9%	11.1%					24.4%	1.6%
Illinois	744,892	\$21,642,770	1992 Q2	2006 Q4	32.1%	1.8%	17.3%	8.4%	7.6%	20.5%				11.0%	1.3%
Kansas	114,174	\$4,671,507	1993 Q4	2004 Q2	26.6%		15.3%	1.8%	1.2%	29.6%				20.8%	4.8%
Kentucky	406,085	\$20,019,934	1995 Q1	2005 Q1	51.3%		24.8%	0.1%						16.8%	7.0%
Louisiana	457,048	\$21,352,258	1995 Q1	2007 Q3	50.3%		29.6%	0.5%	0.0%	0.0%				11.3%	8.3%
Maine	57,877	\$1,126,561	1996 Q3	2008 Q1	31.6%		6.9%	45.5%	0.1%	2.8%				10.7%	2.4%
Massachusetts	478,161	\$11,917,665	1996 Q3	2007 Q4	2.3%	67.7%	0.5%	1.9%	0.0%				9.8%	12.5%	5.3%
Michigan	218,352	\$5,017,722	2000 Q4	2007 Q2	13.0%		17.9%					51.8%		7.8%	9.5%
Minnesota	111,597	\$3,785,227	1999 Q1	2007 Q4	20.9%		18.9%	34.2%	7.3%					17.2%	1.4%
Missouri	354,276	\$12,374,350	1994 Q1	2005 Q1	33.1%	12.1%	17.4%	4.4%				5.9%		24.8%	2.3%
Nebraska	72,902	\$2,439,253	1999 Q1	2004 Q2	11.6%		13.8%		6.4%			36.4%		12.1%	19.6%
New Jersey	593,614	\$24,191,846	1992 Q2	2008 Q1	71.0%		0.7%		0.7%	9.4%				11.3%	7.0%
New Mexico	65,650	\$2,581,212	1992 Q3	2006 Q4	54.6%		9.7%		3.3%	9.1%		5.8%		16.3%	1.2%
New York	1,396,187	\$62,788,290	1993 Q4	2007 Q2	44.7%		15.8%	0.0%	3.8%					8.5%	27.2%
North Carolina	262,855	\$7,023,981	2001 Q1	2007 Q1	17.0%		7.7%	6.6%		9.2%		29.3%		19.6%	10.5%
Ohio	615,071	\$19,672,854	2000 Q3	2005 Q4		0.0%	27.8%	49.5%	0.0%					6.5%	16.2%
Pennsylvania	514,479	\$16,323,933	1998 Q3	2006 Q4	3.9%	0.1%	16.5%	48.6%	0.7%	2.5%		6.3%		9.6%	11.8%
Rhode Island	50,486	\$1,362,340	1994 Q4	2008 Q1	0.3%	93.8%	0.7%							2.0%	3.2%
South Carolina	153,470	\$6,519,748	1993 Q1	2006 Q4	28.8%		23.3%		7.8%			12.1%		20.7%	7.4%
Utah	54,052	\$1,568,312	1998 Q1	2007 Q2	42.1%		29.1%	11.4%	5.1%					12.1%	0.2%
Virginia	248,737	\$8,215,043	2000 Q3	2008 Q1	31.4%		35.7%	1.5%						18.2%	13.1%
Wisconsin	258,736	\$9,128,427	1992 Q4	2005 Q4	22.0%		0.9%	27.3%	0.0%	13.9%				22.4%	13.5%
Wyoming	14,355	\$703,969	1998 Q3	2004 Q2	42.8%		22.5%			2.0%				23.9%	8.8%

Source: State claims and FDB data

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**Figure 35: Payment basis results for primarily WAC based states**



Source: State claims and FDB data

#### F.1.4. Medicaid state claims data considered

38. Alaska Medicaid claims data were produced in year-specific files from 1996 through 2006.<sup>28</sup> The data included the following relevant fields: paid amount, billed amount, dispensing fee, copayment, NDC, third party paid amount, service date, and quantity. MAC data were not produced for Alaska.
39. Arkansas Medicaid claims data were produced in year-specific files from 2000 through 2008.<sup>29</sup> The data included the following relevant fields: paid amount, billed amount, dispensing fee, copayment, NDC, third party paid amount, service date, and quantity. MAC data were produced in December 2008.<sup>30</sup>

<sup>28</sup> Data produced on July 11, 2008 in compact disc HHD258. Annual files titled 'AK\_1stRX\_claims\_YY' and 'Alaska\_PRN\_claims\_YY' were utilized.

<sup>29</sup> Data produced on July 11, 2008 in compact disc HHD258. Annual files titled 'YYYY\_complaint\_claims' were utilized.

<sup>30</sup> Data produced on December 12, 2008 in an email from Kirkland and Ellis.

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40. California Medicaid claims data were produced in one file. The data included the following relevant fields: paid amount, billed amount, dispensing fee, NDC, third party paid amount, service date, and quantity. The data did not include a copayment field. MAC data for California were not provided.<sup>31</sup>
41. Connecticut Medicaid claims data were produced in yearly files from 1991 through 2006.<sup>32</sup> The data included the following relevant fields: paid amount, billed amount, dispensing fee, copayment, NDC, third party paid amount, service date, and quantity. MAC data were not produced for Connecticut.
42. Delaware Medicaid claims data were produced in yearly files from 2003 through 2008.<sup>33</sup> The data included the following relevant fields: paid amount, billed amount, dispensing fee, copayment, NDC, third party paid amount, service date, and quantity. MAC data were included in the claims data production.<sup>34</sup>
43. Florida Medicaid claims data were produced in annual files from 1993 through 2005.<sup>35</sup> The data included the following relevant fields: paid amount, billed amount, dispensing fee, NDC, third party paid amount, service date, and quantity. MAC data were not produced for Florida.
44. Georgia Medicaid claims data were produced in annual files from 2003 through 2007 and a file entitled “All” was produced.<sup>36</sup> The data included the following relevant fields: paid amount, billed amount, dispensing fee, NDC, third party paid amount, service date, copayment and quantity. MAC data were produced in the claims data.
45. Hawaii Medicaid claims data were produced in annual files from 1993 through 2000.<sup>37</sup> Quarterly files from the first quarter of 2001 through the first quarter of 2006 were also provided.<sup>38</sup> The 1993 through 2000 data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, service date, and quantity. The 2001 through 2006 data included the following relevant fields: paid amount, billed amount, dispensing fee, NDC, third party paid amount, service

<sup>31</sup> Data produced on July 11, 2008 in compact disc HHD278. The file titled ‘dey\_complaint\_claims’ was utilized.

<sup>32</sup> Data produced on July 11, 2008 in compact disc HHD258. Annual files titled ‘YYYY\_complaint\_claims’ were utilized.

<sup>33</sup> Data produced on July 11, 2008 in compact disc HHD258. Annual files titled ‘YYYY\_rx\_complaint\_claims’ were utilized.

<sup>34</sup> Data produced on July 11, 2008 in compact disc HHD258. Annual files titled ‘YYYY\_rx\_complaint\_claims’ were utilized.

<sup>35</sup> Data produced on July 11, 2008 in compact disc HHD258. Annual files titled ‘fixed portion’ YYYY were utilized.

<sup>36</sup> Data produced on July 11, 2008 in compact disc HHD258. Annual files titled ‘ga\_YYYY’ and ‘ga\_all’ were utilized.

<sup>37</sup> Data produced on November 6, 2008 in compact disc HHD278. Annual files titled ‘HMSA\_Claims\_Data\_YYYY’ were utilized. Data utilized for 1999 was broken up into two files ‘HMSA\_Claims\_Data\_19990630’ and ‘HMSA\_Claims\_Data\_19991231’

<sup>38</sup> Data produced on July 11, 2008 in compact disc HHD258. Annual files titled ‘HMSA\_Claims\_Data\_YYQQ’ were utilized.

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date, copayment, and quantity. MAC data were produced in a separate file accompanying the 1993 through 2000 claims data.<sup>39</sup>

46. Idaho Medicaid claims data were produced in annual files from 1993 through 2005.<sup>40</sup> The data included the following relevant fields: paid amount, billed amount, dispensing fee, NDC, third party paid amount, service date, and quantity. MAC data were included in the claims data produced.
47. Illinois Medicaid claims data were produced in annual files from 1991 through 2007.<sup>41</sup> The data included the following relevant fields: paid amount, billed amount, dispensing fee, NDC, third party paid amount, service date, copayment, and quantity. MAC data were produced for Illinois.<sup>42</sup>
48. Kansas Medicaid claims data were produced in one file.<sup>43</sup> The data included the following relevant fields: paid amount, billed amount, dispensing fee, NDC, third party paid amount, service date, copayment and quantity. Service date is missing after October 15, 2003 so the claim date was used in the analysis of those claims. MAC data were produced for Kansas.<sup>44</sup>
49. Kentucky Medicaid claims data were produced in annual files for the years 1995 through 2005.<sup>45</sup> The data included the following relevant fields: paid amount, billed amount, dispensing fee, NDC, third party paid amount, service date, copayment, and quantity. MAC data produced obtained through the Kentucky Cabinet of Health and Family Services is being used.<sup>46</sup>
50. Louisiana Medicaid claims data were produced in annual files for the years 1995 through 2007.<sup>47</sup> The data included the following relevant fields: paid amount, billed amount, dispensing fee, NDC, third party paid amount, service date, copayment, and quantity. MAC data were produced with the claims data.

<sup>39</sup> Data produced on July 11, 2008 in compact disc HHD258. File titled 'Pricing\_Information' was utilized.

<sup>40</sup> Data produced on July 11, 2008 in compact disc HHD278. Annual files titled 'YYYY\_rx\_complaint\_claims' were utilized. Also the file '1997\_rx\_corrected\_complaint\_claims' was utilized.

<sup>41</sup> Data produced on July 11, 2008 in compact disc HHD278. Annual files titled 'YYYY\_complaint\_claims' were utilized.

<sup>42</sup> Data produced on August 7, 2008 in compact disc HHD265. The file titled 'dey\_mac\_pricing' was used.

<sup>43</sup> Data produced on July 11, 2008 in compact disc HHD278. The file titled 'dey\_complaint\_claims' was utilized.

<sup>44</sup> Data produced on July 11, 2008 in compact disc HHD278. The document titled 'DEYPRICING' was used.

<sup>45</sup> Data produced on July 11, 2008 in compact disc HHD278. The file titled 'dey\_YYYY\_complaint\_claims' was utilized.

<sup>46</sup> Kentucky Cabinet for Health and Family Services, "Pharmacy Maximum Allowable Cost Program Information," Available at <http://chfs.ky.gov/dms/maximum.htm>.

<sup>47</sup> Data produced on July 11, 2008 in compact disc HHD278. The file titled 'YYYY\_complaint\_claims' was utilized.



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51. Maine Medicaid claims data were produced in two files.<sup>48</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, dispensing fee, service date, dispensing fee, copayment, and quantity. MAC data were not produced for Maine.
52. Massachusetts Medicaid claims data were produced in three files for the years 1996 through 2008.<sup>49</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, service date, copayment, and quantity. MAC data were produced in the Massachusetts attorney general case.<sup>50</sup>
53. Michigan Medicaid claims data were produced in seven files for the years 1996 through 2008.<sup>51</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, dispensing fee, service date, copayment, and quantity. MAC data were not produced for Michigan.
54. Minnesota Medicaid claims data were produced in two sets of annual files from 1999 through 2007.<sup>52</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, dispensing fee, service date, dispensing fee, copayment, and quantity. MAC data were produced for Minnesota in a separate file accompanying the claims data.<sup>53</sup>
55. Missouri Medicaid claims data were produced in two sets of annual files from 1999 through 2007.<sup>54</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, dispensing fee, service date, dispensing fee, copayment, and quantity. MAC data were included within the Missouri claims data.

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<sup>48</sup> Data produced on July 11, 2008 in compact disc HHD278. The file titled 'all\_rx\_complaint\_claims' was utilized. Data also produced on January 20, 2009. The file titled 'RT23690\_Dey\_Claims\_Data\_Extract\_Supplement.TXT' was utilized.

<sup>49</sup> Data produced on July 11, 2008 in compact disc HHD278. The file titled 'fy\_1996-1998', 'fy\_1999-2003', 'fy\_2004\_2008' were utilized.

<sup>50</sup> Data produced on May 2, 2007. The file titled 'Drug SMAC' was utilized.

<sup>51</sup> Data produced on July 11, 2008 in compact disc HHD278. The file titled 'LITFFSA\_complaint\_claims', 'LITFFSB\_complaint\_claims', 'LITFFSC\_complaint\_claims', 'LITFFSD\_complaint\_claims', 'LITFFSE\_complaint\_claims', 'LITFFSF\_complaint\_claims', 'LITFFSG\_complaint\_claims' was utilized.

<sup>52</sup> Data produced on July 11, 2008 in compact disc HHD278. The files titled '1PharClaims\_FFPrate\_CYYYYY' and '2PharClaims\_BaseRateChanges\_CYYYYY' were utilized.

<sup>53</sup> Data produced on July 11, 2008 in compact disc HHD278. The file titled 'DrugUPCPrices' was utilized.

<sup>54</sup> Data produced on November 6, 2008 in compact disc HHD279. The file titled 'dey\_claims' was utilized.

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56. Nebraska Medicaid claims data were produced in one file.<sup>55</sup> The data included the following relevant fields: paid amount, billed amount, NDC, dispensing fee, service date, dispensing fee, copayment, and quantity. MAC data were not produced for Nebraska.
57. New Jersey Medicaid claims data were produced in numerous files.<sup>56</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, dispensing fee, service date, dispensing fee, copayment, and quantity. MAC data were included in the New Jersey claims data.
58. New Mexico Medicaid claims data were produced in five files.<sup>57</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, service date, copayment, and quantity. MAC data were not produced for New Mexico.
59. New York Medicaid claims data were produced in one file.<sup>58</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, service date, and quantity. MAC data were produced for New York in a separate data file.<sup>59</sup>
60. North Carolina Medicaid claims data were produced in two sets of annual files from 2001 through 2007.<sup>60</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, dispensing fee, service date, dispensing fee, copayment and quantity. North Carolina MAC data were obtained from North Carolina Division of Medical Assistance.<sup>61</sup>
61. Ohio Medicaid claims data were produced in four annual files.<sup>62</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, service date, copayment, and quantity. MAC data were contained within the Ohio claims data.
62. Pennsylvania Medicaid claims data were produced in four files.<sup>63</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, service date, copayment,

<sup>55</sup> Data produced on July 11, 2008 in compact disc HHD278. The file titled 'dey\_complaint\_claims' was utilized.

<sup>56</sup> Data produced on July 11, 2008 in compact disc HHD278. The files titled 'adj\_pharm\_claims' and 'pharm\_claims' were utilized. Data also produced on January 16, 2009. The monthly files titled 'Albuterol Claims YYYY-MM (Month).txt' were utilized.

<sup>57</sup> Data produced on July 11, 2008 in compact disc HHD278. The files titled 'ffs\_Final\_0024\_HDR\_Data\_Table', 'ffs\_Final\_0048\_Line\_Data\_Table', 'mco\_Final\_0024\_HDR\_Data\_Table', and 'mco\_Final\_0048\_Line\_Data\_Table' were utilized. Data also produced on November 6, 2008 in compact disc HHD278. The file titled 'invoice\_type\_03\_claims' was used.

<sup>58</sup> Data produced on July 11, 2008 in compact disc HHD278. The file titled 'dey\_complaint\_claims' was utilized.

<sup>59</sup> Data produced on November 6, 2008 in compact disc HHD281. The file titled 'DEY FILES' was utilized.

<sup>60</sup> Data produced on July 11, 2008 in compact disc HHD278. The files titled 'YYYY\_complaint\_claims' were utilized.

<sup>61</sup> North Carolina Division of Medical Assistance, "NC Medicaid Newsletter", Available at <http://www.ncdhhs.gov/dma/>.

<sup>62</sup> Data produced on July 11, 2008 in compact disc HHD278. The files titled 'YYYY\_complaint\_claims' were utilized.

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dispensing fee, and quantity. The file titled 'mamis\_complaint\_claims' did not contain dispensing fee. MAC data were contained within the Pennsylvania claims data.

63. Rhode Island Medicaid claims data were produced in annual files from 1993 through 2008.<sup>64</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, service date, copayment, dispensing fee, and quantity. MAC data were contained within the Rhode Island claims data, but were unusable.
64. South Carolina Medicaid claims data were produced in 3 sets of annual files from 1993 through 2006.<sup>65</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, service date, copayment, dispensing fee, and quantity. MAC data were not produced for South Carolina.
65. Utah Medicaid claims data were produced in 4 sets of annual files from 1998 through 2007.<sup>66</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, service date, copayment, dispensing fee, and quantity. MAC data were produced in a separate file that accompanied the claims data.<sup>67</sup>
66. Virginia Medicaid claims data were produced in two files.<sup>68</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, service date, copayment, dispensing fee, and quantity. Virginia MAC data were contained within the claims data.
67. Wisconsin Medicaid claims data were produced in two sets of annual files from 1992 through 2005 (the MMIS files ranged from 1992 to 2005 and the SC files ranged from 2002 to 2005).<sup>69</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount,

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<sup>63</sup> Data produced on July 11, 2008 in compact disc HHD278. The files titled 'mamis\_complaint\_claims', 'promise\_complaint\_claims', and 'dey\_T\_DRUG\_DIM' were utilized.

<sup>64</sup> Data produced on July 11, 2008 in compact disc HHD278. The files titled 'YYYY\_rx\_complaint\_claims' were utilized.

<sup>65</sup> Data produced on July 11, 2008 in compact disc HHD278. The files titled 'YYYY\_complaint\_claims', 'RX\_YYYY\_complaint\_claims' and 'MF\_2001\_complaint\_claims' were utilized.

<sup>66</sup> Data produced on August 7, 2008 in compact disc HHD265. The files titled 'YYYY\_complaint\_claims', 'YYYY\_detail\_complaint\_claims', 'YYYYa\_main\_complaint\_claims' and 'YYYYb\_main\_complaint\_claims' were used.

<sup>67</sup> Data produced on August 7, 2008 in compact disc HHD265. The file titled 'DrugPriceGroupV' was used.

<sup>68</sup> Data produced on August 7, 2008 in compact disc HHD265. The file titled 'inv06\_complaint\_claims' was used. Additional data produced on January 16, 2009. The file titled 'dey\_inv06\_dec032008' was used.

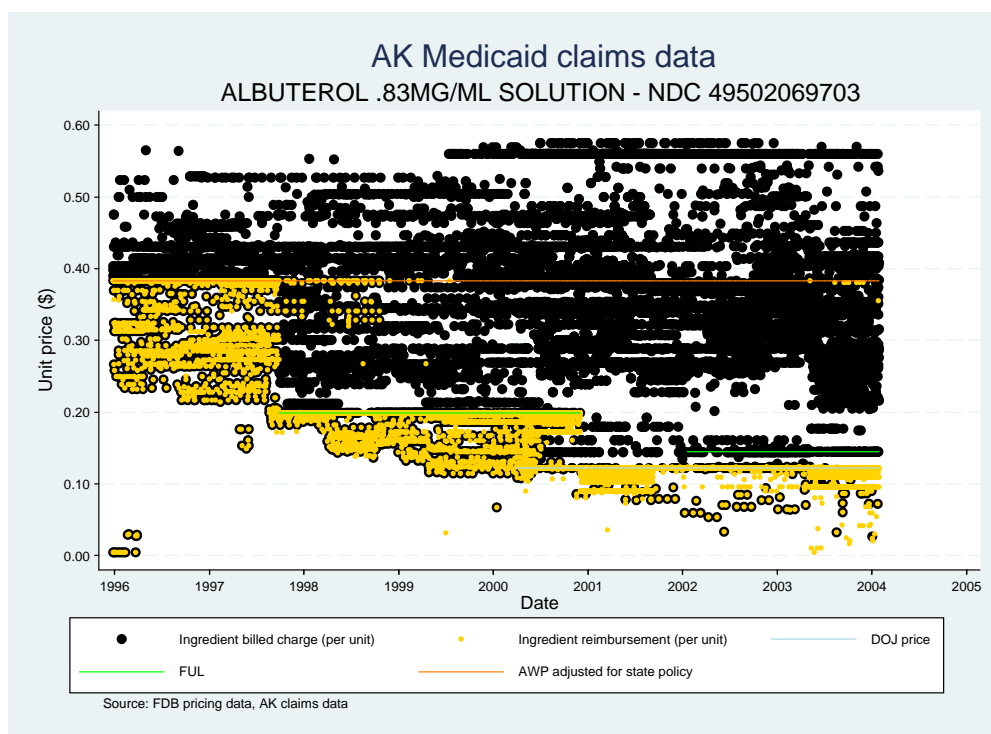
<sup>69</sup> Data produced on August 7, 2008 in compact disc HHD265. The files titled 'MMIS\_YYYY\_complaint\_claims' and 'SC\_YYYY\_complaint\_claims' were used.

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service date, copayment, dispensing fee, and quantity. Wisconsin MAC data were produced in the state attorney general case.<sup>70</sup>

68. Wyoming Medicaid claims data were produced in one file.<sup>71</sup> The data included the following relevant fields: paid amount, billed amount, NDC, third party paid amount, service date, copayment, dispensing fee, and quantity. MAC data were produced for Wyoming in a file separate from the claims data.<sup>72</sup>

**Figure 36: State claims data**



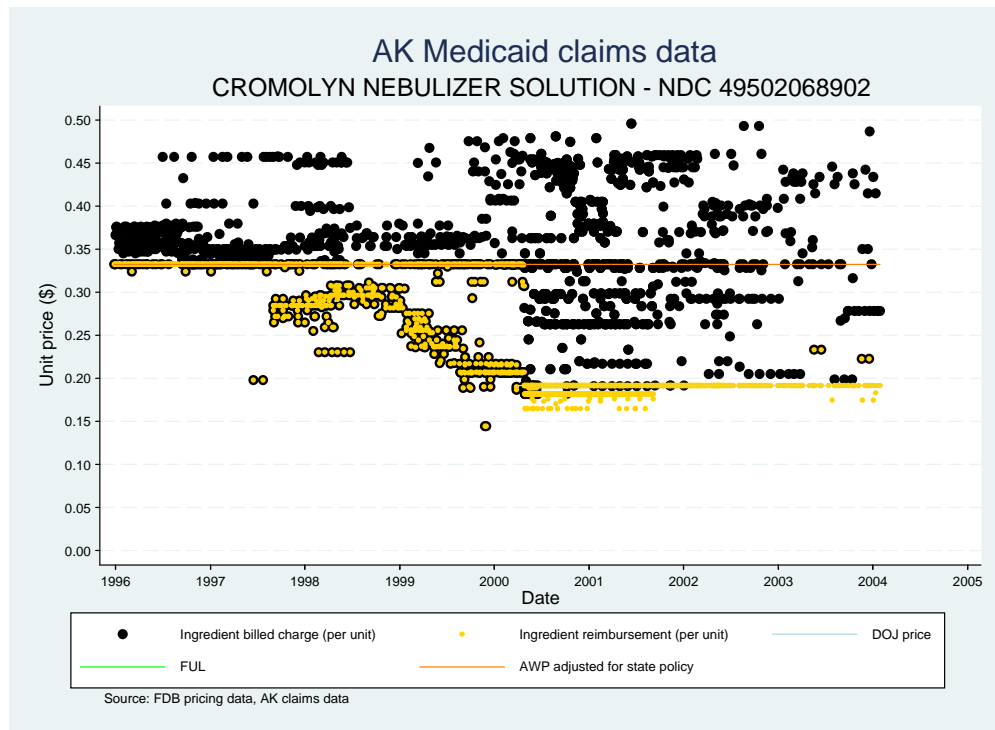
<sup>70</sup> Data produced on December 13, 2007. The file titled 'NDC full file - m' was used.

<sup>71</sup> Data produced on July 11, 2008 in compact disc HHD278. The file titled 'all\_rx\_complaint\_claims' was utilized.

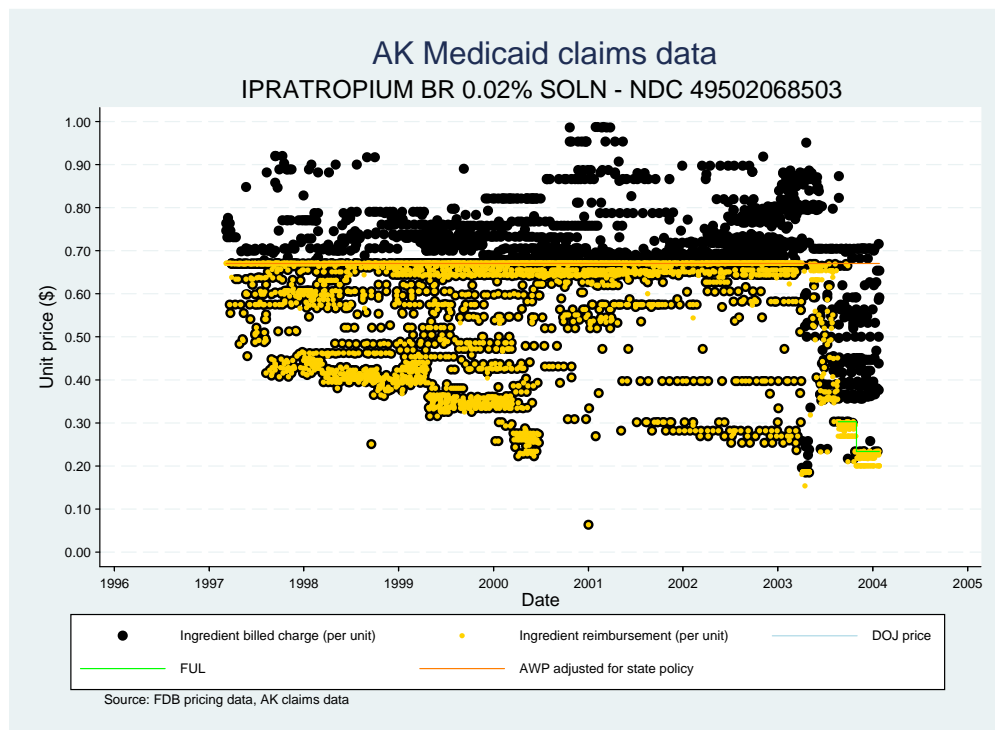
<sup>72</sup> Data produced on January 16, 2009. The file titled 'WY SMAC SupboenaDecember-08-2008.xls' was utilized.

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**Figure 37: State claims data**

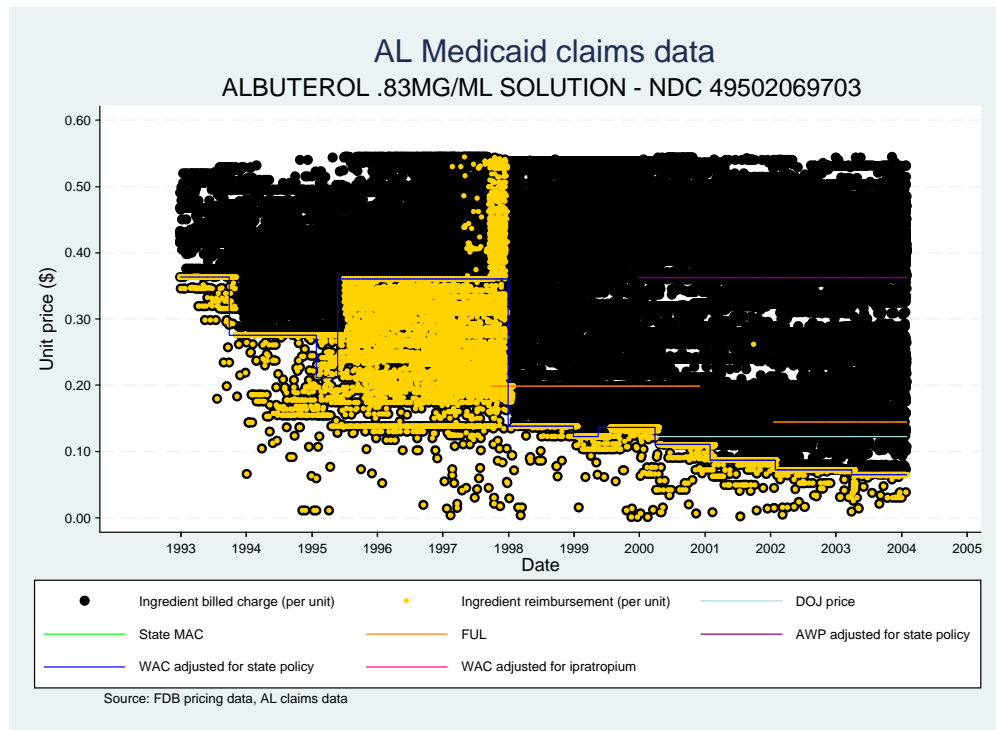


**Figure 38: State claims data**

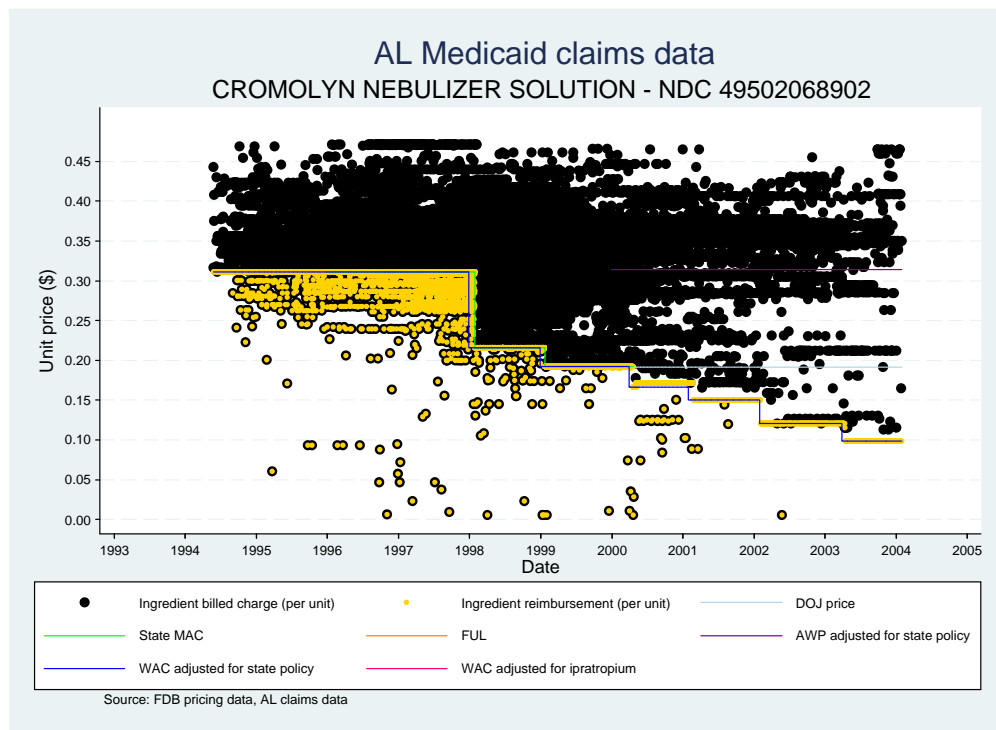


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**Figure 39: State claims data**

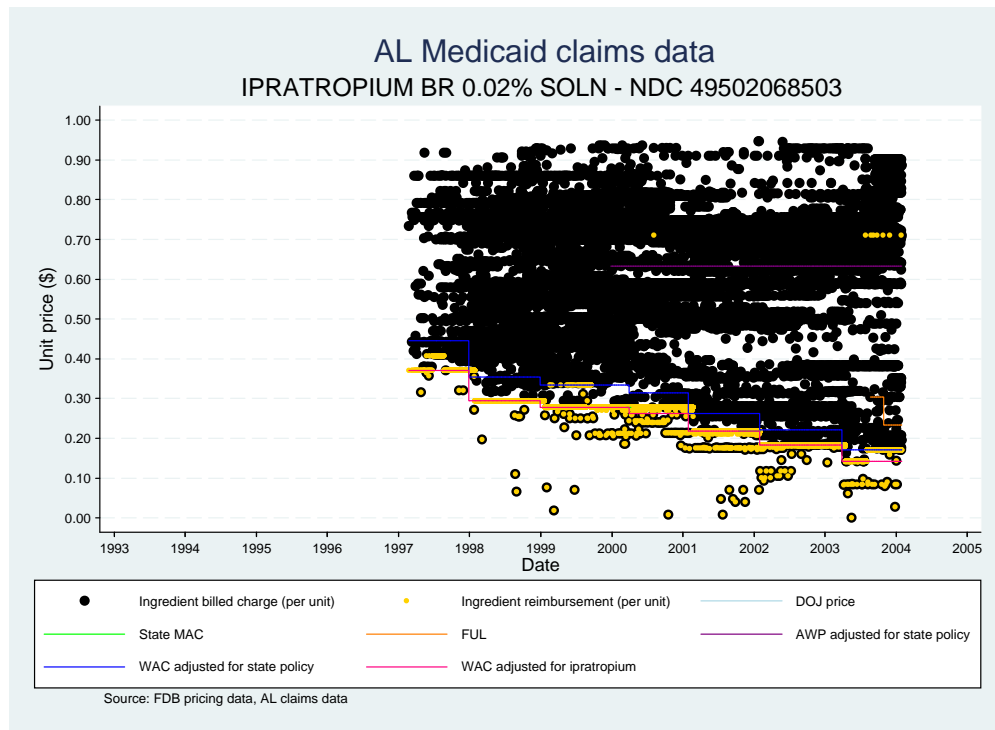


**Figure 40: State claims data**

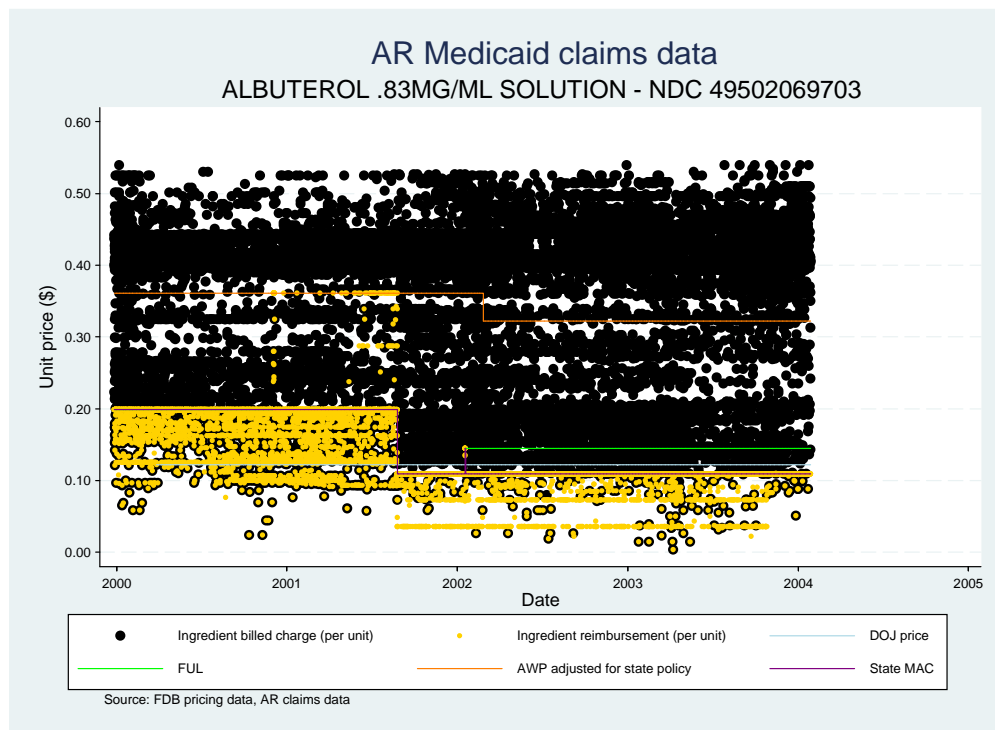


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**Figure 41: State claims data**



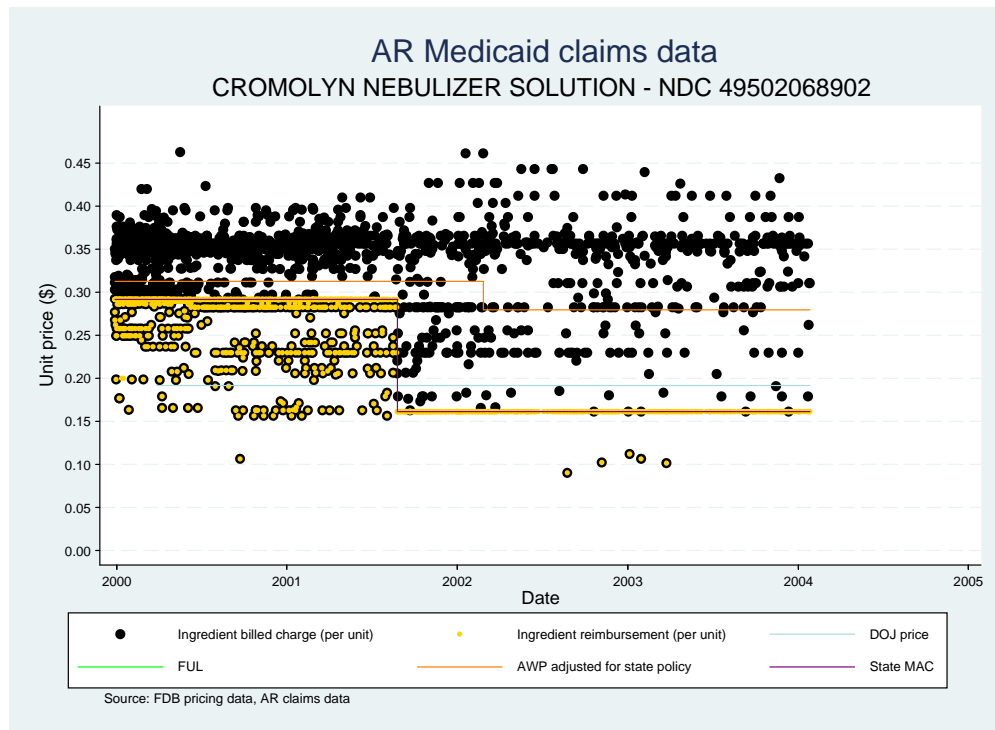
**Figure 42: State claims data**





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**Figure 43: State claims data**



**Figure 44: State claims data**

